

# FORESTRY

Sponsored by:  
Department of Natural Resource Ecology and Management  
Oklahoma State University  
Division of Agricultural Sciences and Natural Resources

## Contest Superintendent

Dr. Craig McKinley  
303C Ag Hall  
(405) 744-8065  
[craig.mckinley@okstate.edu](mailto:craig.mckinley@okstate.edu)

## Contest Details

**Date:** Saturday, April 25, 2009  
**Time:** 8:00 a.m.  
**Location:** OSU Forestry Arboretum and Greenhouse  
Located on Sangre Rd. - North of State Hwy 51 (Not the Oklahoma Botanical Garden and Arboretum)

## Contest Purpose, Objectives, Rules and Guidelines

### **Purpose**

To stimulate student interest and to promote forestry instruction in the agricultural education curriculum as well as provide recognition for those who have demonstrated skills and competencies as a result of forestry instruction.

### **Objectives**

1. Ability to understand and use forestry terms.
2. Ability to promote an understanding of the economic impact of the forest environment and the forest industry to the American economy.
  - A. Size of forestry industry
  - B. Types of forestry industry
  - C. Careers in forestry
  - D. Agencies responsible for our forests
  - E. Federal Regulation on forestry
  - F. International
  - G. Social issues
3. Ability to recognize multiple-use opportunities in the forests.
  - A. Wood products for home and industry

- B. Wildlife
  - C. Water
  - D. Range
  - E. Recreation
  - F. Fisheries
  - G. Aesthetics
  - H. Natural areas
  - I. Wilderness Areas
4. Ability to recognize environmental and social factors affecting the management of forests.
    - A. Multiple-use conflicts/with economic development
    - B. Pollution
    - C. Watershed/water quality
    - D. Windbreaks/soil erosion
    - E. Recreational impacts
    - F. World populations
    - G. Habitat manipulation
    - H. Endangered species
  5. Ability to identify major species of trees of economic importance to the United States and internationally.
  6. Ability to identify hand tools and equipment and their uses in forestry management.
    - A. Forestry measurement and scaling equipment
    - B. Forest harvesting equipment
    - C. Planting equipment
    - D. Safety equipment
    - E. Environmental protection and enhancement
  7. Ability to recognize and understand approved silvicultural practices in the United States.
    - A. Harvesting techniques (methods)
    - B. Thinning/pruning schedules
    - C. Regeneration methods
    - D. Timber stand improvement (TSI)
    - E. Fire as a management tool
    - F. Technological advances
    - G. Habitat manipulation for wildlife, fisheries and endangered species
  8. Ability to identify forest disorders caused by:
    - A. Insect and insect-like pests
    - B. Diseases
    - C. Chemical applications or imbalance

- D. Mechanical damage
- E. Animals
- F. Environmental factors such as:
  - 1. Air pollution
  - 2. Fire
  - 3. Other natural disasters
  - 4. Water quality
  - 5. Soil/site relationships
  - 6. Drought

9. Ability to take a forest inventory.

- A. Reading maps (land descriptions)
- B. Interpreting aerial photographs
- C. Using a compass
- D. Cruising standing timber
  - 1. Diameter
  - 2. Height
  - 3. Volume
  - 4. Site index
  - 5. Species
  - 6. Grade

10. Ability to use marketing management strategies.

- A. Sales contracts
- B. Logging contracts
- C. Taxes
- D. Loss or profit
- E. Record keeping

11. Ability to recognize safety practices in forest management.

- A. Wearing apparel
- B. Environmental awareness
- C. Equipment use
- D. Health hazards
- E. Government laws

## **Event Rules**

1. All general rules apply to this event.

2. Under no circumstances will any participant be allowed to touch or handle plant or wood samples during the event. Any infraction of this rule will be sufficient to eliminate the team from the event.
3. No observers will be permitted in an event area while the event is in progress.
4. No person shall visit the event facilities to observe plant materials and facilities before the event for the purpose of communicating such observations with contestants. Any infraction of this rule will be sufficient to eliminate the team from the event.
5. Participants will be assigned to group leaders who will escort them to various event-staging sites. Each participant is to stay with his or her assigned group leader throughout the event or until told to change leaders by the event superintendent.
6. All participants will be given an identification number by which they will be designated throughout the event.
7. Participants must come prepared and dressed to work outdoors. The event will be conducted regardless of the weather. They should have raingear, warm clothes and adequate footwear.
8. Tools and Equipment: All specialized tools and equipment will be furnished for the event. Participants must use the tools and equipment furnished at the event site.
9. Written Materials: All written materials will be furnished for the event. No written materials such as tests, problems and worksheets shall be removed from the event site.
10. Team size shall be a minimum of three members, with four being permissible. No multiple teams will be considered at this time. The team score is comprised of the team activity and the three best individual scores. Individuals also may compete for individual awards without being a team member.
11. Written answers must be legible. If the grader can't read an answer, it shall be counted wrong.
12. Cell phones are not allowed to be used from the initiation of the contest until all segments are completed. Any contestant using a cell phone during the contest will be immediately disqualified.

### **Special Recognition**

The top three participants in each of the following areas will be recognized:

1. Basic Knowledge and Concepts
2. Tree Identification
3. Each Forestry Practicum

### **Event Format**

Team members will participate in each of the following phases as individuals or as a team cooperative activity.

## **PHASE I: BASIC KNOWLEDGE AND CONCEPTS**

## GENERAL KNOWLEDGE EXAM (100 points)

The test will be completed as an individual effort.

**Test:** Fifty objective-type multiple-choice questions will be selected from areas of forestry reflected in the event objectives. This phase of the event will test participants' knowledge and understanding of basic principles of forestry.

**Time:** Each participant will be allowed 45 minutes to complete this phase of the event.

**Scoring:** Each answer has a value of two points, for a total maximum score of 100 points.

## PHASE II: TREE IDENTIFICATION (90 Points)

Fifteen specimens (which may be living trees or collected specimens) from the following list will be displayed for participants to identify by common and scientific names. Each specimen will be designated by a number.

**Time:** Each participant will be allowed 30 minutes to complete this phase, or approximately two minutes for each specimen station.

**Scoring:** A maximum of 90 points will be awarded with six points for each specimen. Two points will be given for correct common name, including proper spelling and capitalization. Two points each will be given for correct genus and species, including proper spelling and capitalization. Participants are reminded that only proper names (like American or Osage) are capitalized when spelling tree common names. Latin scientific names must be underlined or italicized, with capitalization as shown.

Common Name	Scientific Name
1. loblolly pine	<i>Pinus taeda</i>
2. shortleaf pine	<i>Pinus echinata</i>
3. baldcypress	<i>Taxodium distichum</i>
4. eastern cottonwood	<i>Populus deltoides</i>
5. black willow	<i>Salix nigra</i>
6. hickory group	<i>Carya spp.</i>
7. pecan	<i>Carya illinoensis</i>
8. black walnut	<i>Juglans nigra</i>
9. white oak group	<i>Quercus, Leucobalanus spp.</i>
10. red oak group	<i>Quercus, Erythrobalanus spp.</i>
11. hackberry/ sugarberry	<i>Celtis spp.</i>
12. winged elm	<i>Ulmus alata</i>
13. American elm	<i>Ulmus americana</i>
14. Osage orange	<i>Maclura pomifera</i>
15. red mulberry	<i>Morus rubra</i>
16. sweetgum	<i>Liquidambar styraciflua</i>
17. sycamore	<i>Platanus occidentalis</i>
18. black cherry	<i>Prunus serotina</i>
19. eastern redbud	<i>Cercis canadensis</i>
20. honeylocust	<i>Gledistia triacanthos</i>
21. black locust	<i>Robinia pseudoacacia</i>

22. boxelder	<i>Acer negundo</i>
23. flowering dogwood	<i>Cornus florida</i>
24. common persimmon	<i>Diospyros virginiana</i>
25. white ash	<i>Fraxinus americana</i>
26. green ash	<i>Fraxinus pennsylvanica</i>
27. yellow-poplar	<i>Liriodendron tulipifera</i>
28. ponderosa pine	<i>Pinus ponderosa</i>
29. eastern redcedar	<i>Juniperus virginiana</i>
30. eastern white pine	<i>Pinus strobus</i>
31. Douglas-fir	<i>Pseudotsuga menziesii</i>
32. quaking aspen	<i>Populus tremuloides</i>
33. spruce	<i>Picea spp.</i>
34. fir	<i>Abies spp.</i>
35. slash pine	<i>Pinus elliottii</i>
36. longleaf pine	<i>Pinus palustris</i>
37. Virginia pine	<i>Pinus virginiana</i>
38. eastern hemlock	<i>Tsuga canadensis</i>
39. American beech	<i>Fagus grandifolia</i>
40. river birch	<i>Betula nigra</i>
41. blackgum	<i>Nyssa sylvatica</i>
42. red maple	<i>Acer rubrum</i>
43. western soapberry	<i>Sapindus drummondii</i>

### PHASE III: FORESTRY APPLICATIONS

Participants will compete individually in **three practicums** from the following list. **The event superintendent will designate three practicums on the day of the contest to be completed by the participants.** Each practicum has a score of 100 points and a time period of 30 minutes.

#### *Practicum I. Tree Measurement – Timber Cruising for Board Volume*

- Using forest measuring tools (such as a Biltmore stick and Merritt hypsometer), each participant will measure pre-numbered trees on a fractional acre plot for board foot volume as specified by the event superintendent. The participant must record the DBH (Diameter Breast Height) computed to the nearest inch, and the merchantable height of each tree, height rounded down to the nearest full 8-foot log. Participant must convert the volume to a one-acre basis.
- The minimum diameters and log length will be:

#### **Minimum Saw Timber**

DBH	12 inches
Top Diameter	8 inches
Height	16 feet

- Volume tables will be provided at the event.

4. **Scoring:** Three points will be allowed for the correct DBH and three points for the correct height. Forty points will be allowed for the correct volume per acre. Five points will be deducted for each five percent plus or minus from the correct measured volume.

### ***Practicum II: Timber Cruising for Cord Volume***

1. Using forest measuring tools (such as scale stick, diameter tape and/or clinometer), each participant will measure pre-numbered standing trees on a fractional acre plot for cord volume as specified by the event superintendent. The participant will record the DBH (Diameter Breast Height) and merchantable height of each tree. The height will be rounded down to the nearest 4-foot stick. The DBH will be to the nearest inch. The participant must convert the volume to a one-acre basis.
2. Minimum

DBH	5 inches
Height	12 feet
Top Diameter	4 inches
3. Volume tables and the amount of cubic feet per one cord will be provided for calculation at the event.
4. **Scoring:** Three points will be allowed for the correct DBH and three points for the correct height. Forty points will be allowed for the correct volume per acre. Five points will be deducted for each five percent plus or minus from the correct measured volume.

### ***Practicum III: Map Interpretation***

1. Participants will be furnished a United State Geological Survey topographical map with specific points marked to be identified. The participant shall know legal description, recognize topographic map symbols, understand the meaning of map symbols and size and location of 40 acres or more in a section.
2. Ten points on the map will be clearly marked with a number or arrow pointing to the section, symbol, or area on the map to be identified.
3. Examples:
  - (1) What is the legal description of the area boxed?
  - (2) What is the item located at this point?
  - (3) What is the acreage of the area enclosed?
  - (4) In what section is the city of Marshall located?
4. Legal descriptions will be written or described according to the following:

NW	Northwest
T	Township
SE	Southeast
R	Range
S	Section (640 acres)
1/4	Quarter of a section (160 acres)

5. **Scoring:** Ten questions or problems will be completed. Ten points will be awarded for each correct answer.

***Practicum IV: Compass Practicum***

1. The participant will use a hand compass and pacing to the nearest full foot to simulate the determination of the property lines on a tract of timber. The compass course will have ten marked points. The student will start at any point and record the compass reading and distance to the next point. Azimuth readings shall be recorded.
2. **Scoring:** A total of 100 points are possible: Ten points for each correct numbered site, five points for correct azimuth and five points for correct distance. Partial credit will be given with a deduction of one point for each two degrees or two feet that the participant is off the correct answer.

***Practicum V: Tree/ Forest Disorders***

Symptoms of at least 10 and not more than 20 disorders from the following list will be displayed for participants to identify by common names. Each set of symptoms representing a disorder will be designated by a number.

1. The symptoms will be presented in one or more of the following forms:
  - A. Actual sample
  - B. Picture(s)/slides
  - C. Written description
  - D. Written case history
2. **Scoring:** Five points will be given for each disorder that is correctly identified, for a total of up to 100 points, depending on the number of disorders. (The possible score for this practicum will vary.)

**Tree Disorders**

- |                             |   |
|-----------------------------|---|
| 1. Aphids                   | 16. Butt or heart rots                            |
| 2. Scales                   | 17. Fire damage                                   |
| 3. Gypsy moth               | 18. Lightning damage                              |
| 4. Douglas-fir tussock moth | 19. Storm damage other than lightning             |
| 5. Spruce budworm           | 20. Wood borers                                   |
| 6. Chemical damage          | 21. Tip moths                                     |
| 7. Sunscald                 | 22. Wildlife/ livestock damage                    |
| 8. Mistletoe                | 23. Damping off fungus                            |
| 9. Pine bark beetles        | 24. Wetwood or slime flux                         |
| 10. Declines                | 25. Tent caterpillars                             |
| 11. Pine sawflies           | 26. Vascular wilt (Dutch elm disease or oak wilt) |
| 12. Air pollution           | 27. Needle cast                                   |
| 13. Rusts                   | 28. Dwarf mistletoe                               |
| 13. Cankers                 | 29. Root rots                                     |
| 14. Mechanical damage       |   |

### ***Practicum VI: Forest Products Practicum***

1. Ten to twenty wood products/samples will be displayed for participants to evaluate and identify. The wood products/samples will be presented in one or more of the following forms:
  - A. Actual sample
  - B. Picture(s)/slides
  - C. Written description
2. **Scoring:** This will be a multiple-choice practicum. Five points will be given for each wood product or sample that is correctly identified, for a total of up to 100 points, depending on the number of products/samples. (The possible score for this practicum will vary.)

### **Scoring**

	Individuals	Teams
Phase	Points	Points
Knowledge Exam	100	300
Tree Identification	90	270
Practicums (3) *	300	900
<b>TOTAL</b>	<b>490</b>	<b>1,470</b>

\* Total points may vary in this category.

### **TIEBREAKERS**

Tiebreakers for overall competition will be any activity associated with the entire contest. Tiebreakers for individual events will involve activities associated with that particular event.

### **REFERENCES LIST**

The most current edition of each of the following references will be used

#### **Official References**

*The U.S. Department of Interior Geological Survey, Topographic Map Information and Symbols Key.* Available from: Map Distribution, U.S. Geological Survey, Box 25286, Federal Center, Denver, CO 80223.

Anderson, Holland and Rolfe. *Forests and Forestry*, (4<sup>th</sup> edition). McGraw-Hill Book Company, Inc., 1990.

Harlow, Harrar and White. *Textbook of Dendrology*, (6<sup>th</sup> edition or later). McGraw-Hill Book Company.

Collins and White. *Elementary Forestry*. Reston Publishing Company, Inc.

*Forest Trees of Oklahoma*, Oklahoma Department of Agriculture Forestry Services. ~~Revised by~~ Elbert L. Little, Jr. Revised 2002.

*Silvics of Forests of United States*, Handbook #271. Available from: U.S. Forest Service, P.O. Box 2417, 12<sup>th</sup> and Independence Ave., S.W., Washington, DC 20013

*Forestry Handbook*. Edited by Karl Wenger. Society of American Foresters, 1984. Publisher's address: 5400 Grosvenor Lane, Bethesda, MD 20814.

*Choices in Silviculture for American Forests*. Society of American Foresters, 1981.

*Timber Harvesting* (4<sup>th</sup> edition). American Pulpwood Association and Interstate Publishers, Inc., 1988.

Camp and Daugherty. *Managing Our Natural Resources*. Delmar Publishers, Inc., 1988. Publisher's address: Albany, NY 12212.

### **Equipment References**

Current catalog of Forestry Suppliers, Inc., 205 W. Rankin St., Jackson MS 39204-0397.

Other references are available from the U.S. Forest Service and state forestry agencies.