

# **EASTERN REGIONAL FFA FORESTRY CAREER DEVELOPMENT EVENT**

**IMPORTANT NOTE:** Please thoroughly read the Introduction Section at the beginning of this handbook for complete rules and procedures that are relevant to all Big E FFA Career Development Events.

## **PURPOSE**

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

## **OBJECTIVES**

- A. Ability to understand and use forestry terms.
  - 1. Glossary
- B. Ability to promote an understanding of the economic impact of the forest environment and the forest industry to the American economy.
  - 1. Size of forestry industry
  - 2. Types of forestry industry
  - 3. Careers in forestry
  - 4. Agencies responsible for our forests
  - 5. Federal regulation on forestry
  - 6. International
  - 7. Social Issues
- C. Ability to recognize multiple-use opportunities in the forests.
  - 1. Wood products for home and industry
  - 2. Wildlife
  - 3. Water
  - 4. Range
  - 5. Recreation
  - 6. Fisheries
  - 7. Aesthetics
  - 8. Natural Areas
  - 9. Wilderness Areas
- D. Ability to recognize environmental and social factors affecting the management of forests.
  - 1. Multiple use conflicts /with economic development
  - 2. Pollution
  - 3. Water Shed/Water Quality
  - 4. Wind Breaks/Soil Erosion
  - 5. Recreational Impacts
  - 6. World Populations
  - 7. Habitat Manipulation
  - 8. Endangered Species
- E. Ability to identify major species of trees of economic importance to the United States and internationally.
  - 1. Know the economically important major trees of each region of the United States.
  - 2. Identify the major tree species of those regions.
  - 3. Ability to identify hand tools, equipment, and their uses in forestry management.
  - 4. Forestry measurement and scaling equipment
  - 5. Forest harvesting equipment
  - 6. Planting equipment
  - 7. Safety equipment
  - 8. Environmental protective and enhancement
- F. Ability to recognize and understand approved silvicultural practices in the United States.
  - 1. Harvesting techniques (methods)
  - 2. Thinning /pruning schedules
  - 3. Regeneration methods
  - 4. Timber stand improvement (TSI)
  - 5. Fire as a management tool
  - 6. Technological advances
  - 7. Habitat manipulation for wildlife, fisheries, and endangered species

- G. Ability to identify forest disorders caused by:
  - 1. Insect and insect like pests
  - 2. Diseases
  - 3. Chemical applications or imbalance
  - 4. Mechanical Damage
  - 5. Animals
  - 6. Environmental factors such as:
    - a. Air pollution
    - b. Fire
    - c. Other natural disaster
    - d. Water Quality
    - e. Soil/site relationships
    - f. Drought
- H. Ability to take a forest inventory
  - 1. Reading maps (land descriptions)
  - 2. Interpreting aerial photographs
  - 3. Using a compass
  - 4. Cruising standing timber
    - a. Diameter
    - b. Height
    - c. Volume
    - d. Site index
    - e. Species
    - f. Grade
- I. Ability to use marketing management strategies
  - 1. Sales contracts
  - 2. Logging contracts
  - 3. Taxes
  - 4. Loss or profit
  - 5. Record-keeping
- J. Ability to recognize safety practices in forest management.
  - 1. Wearing apparel
  - 2. Environmental awareness
  - 3. Equipment use
  - 4. Health hazards
  - 5. Government laws

## EVENT RULES

- 1. Team make-up shall consist of 4 members. No multiple teams or additional individuals will be considered at this time. The team score is comprised of all of the individual scores plus a team event.
- 2. **Participants must come to the event prepared to work in adverse weather conditions. The event will be conducted regardless of weather. They should have rain gear, warm clothes and work boots. Hard hats are required and leather work boots are recommended. No sneakers are allowed.**
- 3. **All events occur off site and students are to meet at Gate 1 on the morning of the event by 7 am.**
- 4. **Most of the national rules apply to this event. Please read carefully.**
- 5. Under no circumstances will any participant be allowed to touch or handle plant material during the event. Any infraction of this rule will be sufficient to eliminate the team from the event.
- 6. Observers will be permitted, with prior permission of the superintendent, to observe the event is in progress.
- 7. 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.
- 8. All participants will be given an identification number by which they will be designated throughout the event.
- 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.

## EVENT FORMAT

### A. EQUIPMENT

Materials student must provide: **Each participant must have a clean, free of notes clipboard, two sharpened No.2 pencils, and an electronic calculator.** Calculators used in this event should be battery operated, non-programmable, silent with large keys and large displays. Calculators should have only these functions addition, subtraction, multiplication, division, equals, percent, square root, +/-key, and one memory register. No other calculators are allowed to be used during the event.

Provided: All other tools and equipment will be furnished for the event. Participants must use the tools and equipment furnished at the event site.

### B. CORE EVENTS

The contest will be made up of seven events, Four core and two unknown individual events where individuals will accumulate points for their team and one event where the team works together. Four individual events and one team event will be "core" events, which remain the same every year and are listed as follows:

General Forestry exam	(Individual)
Tree Identification	(Individual)
Forestry Equipment Identification	(Individual)
Tree Measurements	(Individual)
Comprehensive Team Event	(Team)

#### 1. General Knowledge Exam (100 points):

The test may be completed as an individual or team effort. The superintendent will designate the format of the test. Fifty objective-type, multiple-choice questions will be selected from areas of the forestry industry reflected in the event objectives. This phase of the event will test the participant's knowledge and understanding of basic principles of forestry.

Time: Each participant will be allowed 30 minutes to complete this phase of the event.

Scoring: Each answer has a value of 2 points for a total maximum score of 100 points.

#### 2. Tree Identification (100 points):

Twenty specimens from the following list will be displayed for participants to identify by common names. A number will designate each specimen.

Time: Each participant will be allowed 30 minutes to complete this phase.

Scoring: Each answer has a value of 5 points for a total maximum score of 100 points.

Species:

Ash, White-Fraxinus americana

Basswood-Tilia americana

Beech, American-Fagus grandifolia

Birch, Black-Betula lenta

Birch, Gray-Betula populifolia

Birch, Paper-Betula papyrifera

Birch, Yellow-Betula lutea

Boxelder-Acer negundo

Buckeye, Ohio-Aesculus glabra

Butternut-Juglans cinerea

Catalpa-Catalpa bignoides

Cedar, Northern White-Thuja occidentalis

Cedar, Eastern Red-Juniperus virginiana

Cherry, Black-Prunus serotina

Chestnut, American-Castanea dentata

Cottonwood-Populus deltoides

Dogwood, Flowering-Cornus florida

Elm, American-Ulmus americana

Fir, Balsam-Abies balsamea

Hemlock, Canadian-Tsuga canadensis

Hickory, Shagbark-Carya ovata

Holly, American-Ilex opaca

Horsechestnut -Aesculus hippocastanum

Locust, Black-Robinia pseudoacacia  
Maple, Norway-Acer platanoides  
Maple, Red-Acer rubrum  
Maple, Silver-Acer saccharinum  
Maple, Sugar-Acer saccharum  
Oak, Northern Red-Quercus rubra  
Oak, Pin-Quercus palustris  
Oak, White-Quercus alba  
Persimmon-Diospyros virginiana  
Pine, Pitch-Pinus rigida  
Pine, Red-Pinus resinosa  
Pine, Scotch-Pinus sylvestris  
Pine, White-Pinus strobus  
Sassafras-Sassafras albidum  
Spruce Blue-Picea pungens  
Spruce White-Picea glauca  
Spruce, Norway-Picea abies  
Sweetgum-Liquidambar styraciflua  
Sycamore-Platanus occidentalis  
Tulip Tree-Liriodendron tulipifera  
Tupelo-Nyssa sylvatica  
Walnut, Black-Juglans nigra

3. **Equipment Identification (100 points)**

Twenty pieces of equipment from the following list will be displayed for participants to identify by technical names. Each piece of equipment will be designated by number.

Time: Each participant will be allowed 30 minutes to complete this phase.

Scoring: 5 points will be given for each piece of equipment identified correctly for 100 points.

Specimen:

- | No. | Name                          |
|-----|-------------------------------|
| 1.  | Tree Stick                    |
| 2.  | Diameter Tape                 |
| 3.  | Increment Borer               |
| 4.  | Bark Gauge                    |
| 5.  | Tree Caliper                  |
| 6.  | Pulaski Forester Axe          |
| 7.  | Stereoscope                   |
| 8.  | GPS Receiver                  |
| 9.  | Soil Sampler                  |
| 10. | Wheeler Caliper               |
| 11. | Wedge Prism                   |
| 12. | Relaskop                      |
| 13. | Staff Compass                 |
| 14. | Hand Compass                  |
| 15. | Tree Planting Hoe or Bar      |
| 16. | Log Rule                      |
| 17. | Planimeter                    |
| 18. | Survey Instrument (some type) |
| 19. | Hip Chain                     |
| 20. | Plastic Flagging              |
| 21. | Tree Marking Gun              |
| 22. | Clinometer                    |
| 23. | Hypo-Hatchet                  |
| 24. | Canthook                      |
| 25. | Chainsaw                      |
| 26. | Safety Hard Hat               |
| 27. | Chainsaw Chaps                |
| 28. | Safety Glasses                |

29. Altimeter
30. Tally Meter
31. Fiberglass Measuring Tape
32. Fire Rake
33. Drip Torch
34. Data Recorder
35. Fire Weather Kit
36. Tally Book
37. Fire-Swatter
38. Dot Grid
39. Back-Pack Fire Pump
40. Plant Press
41. Flow/Current Meter
42. Soil Test Kit
43. Water Sampler
44. Densimeter
45. Water Test Kit
46. PH Meter
47. Hand Lens/Field Microscope
48. Bulldozer
49. End Loader
50. Feller Buncher
51. Logger's Tape
52. Tree Harvester
53. Tree Skidder

#### 4. Tree Measurement Timber Cruising for Board Volume

Using forest measuring tools, (such as scale stick, diameter tape, or clinometer), 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 8' log. Participant must convert the volume to a one-acre basis.

The following minimum diameters and log length will be:

##### Minimum Saw Timber

DBH	10 inches
Top Diameter	10 inches (D.I.B.)
Height	16 feet

Volume tables will be provided at the event.

Time: Each participant will be allowed 30 minutes to complete 10 specimens.

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 5 percent plus or minus from the correct measured volume.

#### 5. TEAM EVENT

The team event can be any one of the three other core events or seven Individual Events listed or a combination thereof. All of the team members will participate in this event.

Time: The team will be allowed a total of 30 minutes to complete the event.

SCORING: The event will have a total value of 100 points.

#### C. INDIVIDUAL EVENTS

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

##### 1. Forest Management Evaluation -Timber Stand Improvements (TSI) and/or thinning

The trees selected and designated for use in this part of the event may be all of one species or a mixture of species.

An area will be selected and identified by ribbons, paint, rope, etc. It will contain at least 15, and not more than 30 marked trees within a timber stand, that needs thinning or some TSI work.

All trees in the selected area will be considered as a forest management site, and the participants using one of the following options will score each marked tree:

- a. Harvest - (utilize the tree)
- b. Leave - (the tree should remain in stand for a good reason)
- c. Deadened - (Undesirable tree, not merchantable or beneficial to wildlife, should be deadened or cut down and left in woods)

The participants will be given a "situation" concerning the forest management objectives of the stand selected. Information that will be needed to help participants in their decisions will include:

- a. Markets available - (including hardwood)
- b. Wildlife habitat considerations - (scope, etc.)
- c. Present condition of the stand
- d. Final goal of the management plan

This information will be given to participants at the site before they start evaluation of the stand orally, by either poster or a "hand-out" sheet.

## 2. Map Interpretation

Participants will be furnished a United States geological survey topographic map with specific points marked for the participant to identify. The participant shall know legal description, recognize topographic map symbols and understand the meaning of map symbols and size and location of 40 acres or more in a section.

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.

Examples:

- a. What is the legal description of the area boxed?
- b. What is the item located at this point?
- c. What is the acreage of the area enclosed?
- d. In what section is the city of Marshall located?

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)

## 3. Compass Practicum

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.

Scoring: 100 points are possible: Ten points for each correct numbered site. Five points for correct azimuth and five points for correct distance will be awarded. Partial credit will be given with a deduction of one point for each two degrees or two feet the participant is off the correct answer.

## 4. Chainsaw Part Identification, Troubleshooting, and Safety

This practicum is divided into three parts:

Part 1 - Chainsaw part identification - Each participant will identify parts of a chainsaw. These parts will be labeled on a saw or will be removed from the saw.

Part 2 - Troubleshooting - The participant will identify "problems" or "troubles". Each station will have a part, component, saw, or written situation with problem areas clearly marked. The participant may pick up parts or touch the saw.

Part 3 - Safety - The participant will observe photos, actual parts, written situations and/or problems to identify the safety hazard or unsafe practice.

## 5. 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. The symptoms will be presented in one or more of the following forms:

- a. Actual Sample
- b. Picture(s)/ Slides
- c. Written descriptions
- d. Written case history

A number will designate each set of symptoms representing a disorder.

## Tree Disorders:

Aphid	Scale	Gypsy Moth
Douglas Fir Tussock Moth	Spruce Budworm	Spider Mite
Cicada	Leaf Spot	Beetles
Wood Borer	Wildlife/Livestock Damage	Mechanical Damage
Landscape Equipment Damage	Girdling Roots	Fire Damage
Nematode	Rust	Lightning Damage
Butt or Heart Rot	Needle Cast	Sawfly
Air Pollution	Canker	Sunscald
Damping Off	Mistletoe	Wetwood or Slime Flux
Climatic Injury: Snow, Wind, Frost,	Chemical Damage	Tent Caterpillar
Drought, Hail	Emerald Ash Borer	Hemlock Wholly Adelgid

## 6. Forest Products Practicum

Ten to twenty wood products/samples will be displayed for participants to evaluate and identify its tree species source from the approved tree specimen list. The wood products/samples will be presented in one or more of the following forms:

- Actual Sample
- Picture(s)/slides
- Written description

A number will designate each sample representing a species.

## 7. Forest Business Management Problem

This section is designed to determine the participants ability to apply economic principles and concepts of management to the decision making process by actual problem analysis and to defend the decisions made. This will involve a model forest operation with possible calculation on profit/loss, cost of operation, taxes, depreciation, marketing product, stumpage cost, record keeping, etc. The exact problem may or may not be in a listed reference. A maximum of ten problems or questions will be used.

## D. TIEBREAKERS

Tiebreakers for teams will be the first, second and third high individuals. Tiebreakers for individual scores will be 1) Knowledge Exam, 2) Tree Identification and 3) Equipment Identification.

## E. SCORING

Phase	Individual Points	Team Points
Knowledge Exam	100	400
Tree Identification	100	400
Equipment Identification	100	400
Tree Measurements	100	400
Team Event		450
Unknown Practicum's (2)	<u>200</u>	<u>800</u>
Total	600	2850

## AWARDS

All awards will be presented at the Awards Banquet. Awards for this event are sponsored by The Big E.

## REFERENCES

This list of references is not intended to be inclusive. Other sources may be utilized and teachers are encouraged to make use of the very best instructional materials available. The following list contains references that may prove helpful during event preparation. The most current edition of each of the following references will be used.

The U.S. Department of Interior Geological Survey Topographic Map Information and Symbols Key, Map Distribution, U.S. Geological Survey, Box 25286, Federal Center, Denver, CO 80223. David A. Anderson, I. I. Holland and Gary L. Rolfe. *Forests and Forestry*, current edition. Danville, IL: The Interstate Printers Publishers, Inc. W. M. Harlow, E. S. Harrar, and F. M. White. *Textbook of Dendrology*, current edition. New York, NY: McGraw-Hill Book Company B. McManar Collins and Fred M. White. *Elementary Forestry*. Reston, VA: Reston Publishing Company, Inc.

B. McManar Collins and Fred M. White. *Elementary Forestry*. Reston, VA: Reston Publishing Company, Inc.

*Silvics of Forests of United States*, Handbook #271, U. S. Forest Service, P.O. Box 2417, 12th and Independence Avenue, SW, Washington, DC 20013.

Owners Manual -Homelite -Division of Textron, P.O. Box 7047, Charlotte, NC 28217.

*Forestry Handbook*, current edition, Edited by Karl Wenger for the Society of American Foresters, 5400 Grosvenor Lane, Bethesda, MD 20814.

*Choices in Silviculture for American Forests*, current edition. Society of American Foresters, 5400 Grosvenor Lane, Bethesda, MD 20814.

*Timber Harvesting*, current edition, American Pulpwood Association, The Interstate Printers & Publishers, Inc. Danville, IL.

Chain Saw Manual, current edition, American Pulpwood Association, The Interstate Printers & Publishers, Inc., Danville, IL

William G. Camp & Thomas R. Daugherty. *Managing Our Natural Resources*, current edition,. Albany, NY: Delmar Publishers, Inc.

***Equipment References***

Current Catalog of Forestry Suppliers, Inc., 205 West Rankin Street, Jackson, MS 39204-0397.

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

Name \_\_\_\_\_ Chapter \_\_\_\_\_

State \_\_\_\_\_ Member No. \_\_\_\_\_