

Illinois Association of Vocational Agriculture Teachers Forestry Career Development Event

A. General Information

1. Team:

A team shall consist of five participants. The three participants with the highest score shall constitute the team score.

2. Placings/Scoring:

Official ring placings will be given immediately following completion of the event.

3. Miscellaneous:

- a) 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 cause to eliminate this team member from the event.
- b) Observers will not be permitted in the event area while the event is in progress. Any participant caught cheating and/or talking during the event will be disqualified.
- c) All participants are expected to be prompt at their stations throughout the event. No provision will be made for tardiness and late participants will risk losing event points.
- d) Participants will be assigned to group leaders who will escort them to various event staging sites.
- e) All participants will be given a participant number by which they will be designated throughout the event.
- f) Each participant is to stay with his or her group leader throughout the event or until told to change leaders by the event chairman.
- g) Participants should come prepared to work in adverse weather conditions; they should have raincoats and proper clothing.
- h) All written materials will be furnished for the event. Each participant should provide a clipboard and pencil; electronic calculators will be allowed.
- i) Unless prior arrangements are made with the event chairman, each participant should provide a tree scale stick (Biltmore).

4. Additional Information: Refer to the *Annual Information and General Rules* section for the current year for information concerning **Entry Fees, Registration, and Location** of the event.

5. Watch the *News & Notes* and the *AgEd Listserve* for event details.

B. Event Format

1. General Knowledge (100 points)

Fifty objective-type multiple-choice questions, from the listed references, will be selected from areas of the forestry industry. This phase of the event will test the participant's knowledge and understanding of basic principles of forestry. Each participant will be allowed 50 minutes to complete this phase of the event. Each answer has a value of 2 points for a maximum score of 100 points.

2. Tree Identification (150 points)

Twenty-five specimens from the following list will be displayed for participants to identify by common names. Each specimen will be designated by a number. Each participant will be allowed 30 minutes to complete this phase. Six points will be given for each correctly identified specimen for a maximum of 150 points.

American Basswood	Hickory, Pignut	Pine, Eastern White
American Hophorn Beam	Hickory, Shagbark	Pine, Jack
Ash, Green	Kentucky Coffetree	Pine, Pitch
Ash, White	Locust, Black	Pine, Red
Aspen, Quaking	Locust, Honey	Pine, Scotch
Baldcypress	Maple, Red	Pine, Virginia
Birch, Paper; Birch, White	Maple, Silver	Redbud, Eastern
Birch, River	Maple, Sugar	Redcedar, Eastern
Black Cherry	Oak, Black	Sassafras
Box Elder	Oak, Bur	Spruce, Norway
Catalpa	Oak, Chinkapin	Sumac
Cottonwood, Eastern	Oak, Northern Red	Sweetgum
Elm, American; Elm, White	Oak, Pin	Sycamore, American Planetree
Elm, Red; Elm, Slippery	Oak, Post	Tulip-poplar
Hackberry	Oak, Shingle	Walnut, Black
Hemlock, Eastern	Oak, White	Willow, Black
Hickory, Bitternut	Pecan	
Hickory, Mocknut	Persimmon	

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 a number. Each participant will be allowed 30 minutes to complete this phase, or approximately 1½ minutes for each equipment station. Five points will be given for each piece of equipment identified correctly for a maximum of 100 points.

Abney Level	Hand Compass	Single bitted axe
Bark Gauge	Hand Lens/Field	Stadia Rod
Chain Saw	Microscope	Staff Compass
Chaps	Hypsometer	Stereoscope
Diameter Tape	Increment Borer	Surveying pins
Double bitted axe	Jacobs Staff	Tally Meter
Drip Torch	Peavy/canhook	Tree Caliper
Ear Protectors	Planimeter	Tree injector
Fiberglass measuring tape	Plastic flagging	Tree planting hoe or bar
Fire Rake	Pulaski forester axe	Tree scale stick
Forestor's Chain	Relaskop	Wedge Prism
Fusee	Safety glasses	
GPS Receiver	Safety hat	

4. Practicums

Participants will compete individually in four practicums from the following list.

Every year - participants will compete in the “Timber Cruising for Board Volume” practicum and the “Map Reading practicum”.

Even-numbered years - participants will also compete in the “Forest Management Evaluation - Timber Stand Improvements (TSI) and/or Thinning” and “Compass Reading” practicums.

Odd-numbered years - participants will also compete in the “Chain Saw Part Identification, Troubleshooting, and Safety” and “Tree/Forest Disorders” practicums.

a. **Tree Management - Timber Cruising for Board Volume** (Every year)

- 1) Using a tree scale stick, each participant will measure ten (10) pre-numbered trees on a fractional acre plot for board foot volume as specified by the division superintendent. The participant must record the Diameter Breast Height (DBH) computed to the nearest inch, and the merchantable height of each tree, height rounded down to the nearest 8-foot log. Participants must calculate the volume of each tree.
- 2) The following minimum diameters and log length will be:

Minimum Saw Timber

DBH	12 inches
Top Diameter (inside bark)	8 inches
Height	16 feet

- 3) Time: Participants will be allowed 30 minutes to measure height, record DBH and calculate volume.
- 4) Volume tables will be provided at the event site.
- 5) Scoring: Three points will be allowed for the correct DBH; 3 points for the correct height and four points will be allowed for the correct volume per tree. A maximum score for this practicum is 100 points.

b. **Map Interpretation** (Every year)

- 1) Participants will be furnished a U.S. Geological Survey topographic map with specific points marked for the participant to identify. The participant shall know legal descriptions, recognize topographic map symbols, understand the meaning of map symbols and size, and describe 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 a section, symbol, or area on the map to be identified.
- 3) 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?
- 4) Legal descriptions will be written or described according to the following:
 - NW - Northwest
 - T - Township
 - SE - Southeast
 - R - Range
 - S - Section (640 acres)
 - $\frac{1}{4}$ - Quarter of a section (160 acres) or a quarter of a quarter (40 acres of the 160)
- 5) Time: Thirty minutes will be allowed for this phase.
- 6) Scoring: Ten questions or problems will be completed. Five points will be awarded for each correct answer. The maximum possible score for this practicum is 50 points.

- c. **Forest Management Evaluation - Timber Stand Improvement (TSI) and/or Thinning** (Even-numbered years)
- 1) The ten (10) trees selected and designated for use in this part of the event may be all of one species or a mixture of species.
 - 2) A timber stand area will be selected and identified by ribbons, paint, rope, etc. The area will contain ten (10), marked trees that need thinning or some TSI work.
 - 3) 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 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 poster, or a *handout* sheet.
 - 4) All trees in the selected area will be considered part of a forest management site and each marked tree will be scored using one of the following options.
 - a) Harvest - utilize the tree.
 - b) Leave - the tree should remain in the stand for a good reason
 - c) Deaden - undesirable tree, not merchantable or beneficial to wildlife, should be deadened or cut down and left in the woods.
 - 5) Time: Participants will be given 30 minutes to make their decisions.
 - 6) Scoring: Five points will be allowed for each correct deciding to Deaden, Leave or Cut/Harvest each specimen. Additionally, five points will be allowed for identifying the correct reason to Deaden, Leave or Cut/Harvest each specimen. The maximum possible score for this practicum is 100 points.
- d. **Compass Practicum** (Even-numbered years)
- 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 10 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) Time: Thirty minutes will be provided for this portion of the test.
 - 3) Scoring: A total of 100 points is possible - 10 points for each correctly numbered site; 5 points for correct azimuth, and 5 points for correct distance. Partial credit will be given with a deduction of 1 point for each 2 degrees or 2 feet the participant is off the correct answer.
- f. **Chain Saw Part Identification, Troubleshooting, and Safety** (Odd-numbered years)
- This practicum is divided into three parts:
- Part 1: Part Identification**
- In the chain saw part identification each participant will identify parts of a chain saw. 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 a safety hazard or unsafe practice.

- 1) Time: Thirty minutes will be allowed
- 2) Scoring: The maximum possible score for this practicum is 100 points.

g. **Tree/Forest Disorder (Odd-numbered years)**

- 1) 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.

<ul style="list-style-type: none"> Aphid Scale Gypsy Moth Douglas Fir Tussock moth Spruce Budworm Spider mite Cicada Leaf Spot Beetles Wood Bore Wildlife/Livestock Damage Needle Cast Sawfly Sunscald Air Pollution 	<ul style="list-style-type: none"> Canker Damping off Mistletoe Wetwood or Slime flux Chemical Damage Tent Caterpillar Mechanical logging/construction Landscape maintenance equipment damage Girdling Roots Fire Damage Climatic injury: Snow, Wind, Frost, Drought, Hail Nematode Rust Lightening Damage Butt or Heart Rot
---	---

- 2) The symptoms will be presented in one or more of the following forms:
 - a) Actual Sample
 - b) Picture(s)/Slide(s)
 - c) Written Description
 - d) Written case history

Each set of symptoms representing a disorder will be designated by a number.

- 2) Time: Each participant will be allowed 30 minutes to complete this practicum.
- 3) Scoring: Each disorder will be valued equally. The maximum possible score for this practicum is 100 points.

C. Suggested References

Primary

Holland, I.I., G.L. Rolfe, and D.A. Anderson. *Forests and Forestry*, 4th Ed. Interstate Publishers, Inc., Danville, IL.

Harlow, W.M., E.S. Harrar, J.L. Hardin, and F.M. White. 1991. *Textbook of Dendrology*, 7th Ed. McGraw-Hill, St. Louis, Missouri.

McManar Collins, B. and F.M. White, *Elementary Forestry*. Reston Publishing Co., Reston, VA

U.S. Forest Service, *Silvics of Forests of the United States*. Handbook 271. U.S. Forest Service, Washington, DC.

Haygreen, J.G., and J.L. Bowyer. 1989. *Forest Products and Wood Science*, 2nd Ed. Iowa State University Press, Ames, Iowa.

Other

Wenger, K. (ed.). 1984. *Society of American Foresters*. Forestry Handbook. John Wiley & Sons, NY.

Mohlenbrock, R.H. 1983. *Forest Trees of Illinois*, 4th Ed. Illinois Dept. of Conservation.

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

Information Technology and Communication Services. *Land Surveys and Descriptions* (U2042). University of Illinois.

Career Development Events Handbook 2006-2010. National FFA Organization, P.O. Box 68960, 6060 FFA Drive, Indianapolis, IN.46268-6060.

D. Judging Cards

Cards for this event may be ordered from Information Technology and Communication Services, University of Illinois at Urbana-Champaign, 1 (800) 345-6087 OR (217) 333-3871

Name _____ School _____

J999.130

General Knowledge Test

Directions: Circle the letter corresponding to the answer on the test.

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

J999.120G

Name _____ School _____

TREE IDENTIFICATION LIST

_____ American Basswood	_____ Oak, Black
_____ American Hophornbeam	_____ Oak, Bur
_____ Ash, Green	_____ Oak, Chinkapin
_____ Ash, White	_____ Oak, Northern Red
_____ Aspen, Quaking	_____ Oak, Pin
_____ Baldcypress	_____ Oak, Post
_____ Birch, Paper; Birch, White	_____ Oak, Shingle
_____ Birch, River	_____ Oak, White
_____ Black Cherry	_____ Pecan
_____ Boxelder	_____ Persimmon
_____ Catalpa	_____ Pine, Eastern White
_____ Cottonwood, Eastern	_____ Pine, Jack
_____ Elm, American; White Elm	_____ Pine, Pitch
_____ Elm, Red; Elm, Slippery	_____ Pine, Red
_____ Hackberry	_____ Pine, Scotch
_____ Hemlock, Eastern	_____ Pine, Virginia
_____ Hickory, Bitternut	_____ Redbud, Eastern
_____ Hickory, Mockernut	_____ Redcedar, Eastern
_____ Hickory, Pignut	_____ Sassafras
_____ Hickory, Shagbark	_____ Spruce, Norway
_____ Kentucky Coffeetree	_____ Sumac
_____ Locust, Black	_____ Sweetgum
_____ Locust, Honey	_____ Sycamore, American Planetree
_____ Maple, Red	_____ Tulip-poplar
_____ Maple, Silver	_____ Walnut, Black
_____ Maple, Sugar	_____ Willow, Black

Number wrong _____ Score _____

LJB

Name: _____
 School: _____

Equipment Identification
 (100 points)

Directions: Place the corresponding number of the sample opposite the correct name.

_____ Abney Level	_____ Peavy/canhook
_____ Bark Gauge	_____ Planimeter
_____ Chain Saw	_____ Plastic flagging
_____ Chaps	_____ Pulaski forester axe
_____ Diameter Tape	_____ Relaskop
_____ Double bitted axe	_____ Safety glasses
_____ Drip Torch	_____ Safety hat
_____ Ear Protectors	_____ Single bitted axe
_____ Fiberglass measuring tape	_____ Stadia Rod
_____ Fire Rake	_____ Staff Compass
_____ Forester's Chain	_____ Stereoscope
_____ Fusee	_____ Surveying pins
_____ GPS Receiver	_____ Tally Meter
_____ Hand Compass	_____ Tree Caliper
_____ Hand Lens/Field Microscope	_____ Tree injector
_____ Hypsometer	_____ Tree planting hoe or bar
_____ Increment Borer	_____ Tree scale stick
_____ Jacobs Staff	_____ Wedge Prism

Number wrong _____ Score _____

Name: _____
 School: _____

Timber Cruising
 (100 points)

Using appropriate forest measuring tools, measure each of the numbered trees to determine board-foot volume, merchantable height, and diameter breast height (DBH). Minimum diameters are:
 Saw Timber 12 inches DBH
 Top diameter, inside bark 8 inches

Tree Number	Merchantable Height	Diameter Breast Height (DBH)	Volume
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
Score			
Total Score			

Name: _____
 School: _____

Map Reading
 (50 points)

		Score
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
Total Score		

Name: _____
 School: _____

Compass Reading
 (100 points)

Station	Distance	Azimuth	Score
1 to 2			
2 to 3			
3 to 4			
4 to 5			
5 to 6			
6 to 7			
7 to 8			
8 to 9			
9 to 10			
10 to 1			
Total Score			

Timber Stand Improvement Practicum (100 points)

Place an X in the box that corresponds to the action you recommend and the reason you recommend that action. If you select "Other" you must explain what that "Other Reason".

	1	2	3	4	5	6	7	8	9	10
Deaden										
Undesirable species complex (TSI)										
Interfering with the growth and development of a more desirable species (crop tree management)										
Cull tree - poor form which renders it useless as a merchantable stem or as cordwood (TSI)										
Wildlife tree (den tree, cavity observed, obvious visual defect)										
Other reason not listed (explain)										
Leave										
Desirable species, however not mature (less than the utilization as prescribed in the narrative)										
Wildlife tree (leave as hard mast tree for wildlife benefit, may or may not be used as a den tree)										
Leave as a seed tree for regeneration (good genetics, only mature specimen in the vicinity)										
Aesthetics (based on landowners objectives or narrative)										
Threatened or endangered tree species										
Other reason not listed (explain)										
Cut/Harvest										
Dead & diseased (if meets utilization standards - DBH & Merchantable Log Length)										
Mature for site and species (combinant of age. Soils, environment, species, etc.)										
Firewood (as prescribed in the narrative)										
Meets diameter requirement, but has a defect which still renders it useable as sawtimber.										
Cull trees (does not meet sawtimber requirements, but may be used as pulpwood/cordwood)										
Other reason not listed (explain)										

Name: _____

School: _____

Chainsaw ID, Troubleshooting & Safety
(100 points)

- 1 _____ 11 _____
- 2 _____ 12 _____
- 3 _____ 13 _____
- 4 _____ 14 _____
- 5 _____ 15 _____
- 6 _____ 16 _____
- 7 _____ 17 _____
- 8 _____ 18 _____
- 9 _____ 19 _____
- 10 _____ 20 _____

Score _____

Name: _____

School: _____

Tree/Forest Disorders
(100 points)

Directions: Place the corresponding number of the sample opposite the tree/forest disorder.

- _____ Aphid
- _____ Scale
- _____ Gypsy Moth
- _____ Douglas Fir Tussock moth
- _____ Spruce Budworm
- _____ Spider mite
- _____ Cicada
- _____ Leaf Spot
- _____ Beetles
- _____ Wood Bore
- _____ Wildlife/Livestock Damage
- _____ Needle Cast
- _____ Sawfly
- _____ Sunscald
- _____ Air Pollution
- _____ Canker
- _____ Damping off
- _____ Mistletoe
- _____ Wetwood or Slime flux
- _____ Chemical Damage
- _____ Tent Caterpillar
- _____ Mechanical logging/construction
Landscape maintenance
equipment damage
- _____ Girdling Roots
- _____ Fire Damage
- _____ Climatic injury: Snow, Wind,
Frost, Drought, Hail
- _____ Nematode
- _____ Rust
- _____ Lightening Damage
- _____ Butt or Heart Rot

Number wrong _____

Score _____