

INDIANAFFA

PRACTICAL FORESTRY CDE



Revised March 2023



Practical Forestry CDE

I. Purpose

The Indiana FFA Forestry Career Development Event is designed 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 as a result of forestry instruction.

II. Objectives

- A. Ability to understand and use forestry terms.
- B. Ability to promote an understanding of the economic impact of the forest environment and the forest industry to the American economy.
- C. Ability to recognize sustainability (multiple use) opportunities in the forests.
- D. Ability to recognize environmental and social factors affecting the management of forests.
- E. Ability to identify major species of trees of economic importance to the United States and internationally.
- F. Ability to identify hand tools, equipment, and their uses in forestry management.
- G. Ability to recognize and understand approved silvicultural practices in the United States.
- H. Ability to identify forest disorders.
- I. Ability to take a forest inventory.
- J. Ability to utilize marketing management strategies.
- K. Ability to recognize safety practices in forest management.

- III. Agriculture, Food and Natural Resources (AFNR) Career Cluster Content Standards With the recommendation of the National FFA Board of Directors, all national FFA programs have incorporated these standards to guide the direction and content of program materials and activities.



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IV. Event Rules

A. The team will consist of four individuals and all four scores will count toward the team score. The team score is comprised of the combined scores of each individual and the team activity in which all team members will participate.

B. Participants must come to the event prepared to work in adverse weather conditions. The event will be conducted regardless of weather. Participants should have rain gear, warm clothes, and proper footwear. Each participant must provide the following safety equipment, and it must be worn while in the woods or the participant may be disqualified:

1. Hard Hat
2. Safety Glasses
3. Tree Stick
4. Diameter Tape
5. Clipboard
6. Pencil

*While there may be a few provided at the event site, it is not guaranteed that there will be enough for all who may need them.

C. Participants must follow instructions from event staff for handling materials during the event. Any infraction of this rule will be sufficient to eliminate the team from the event.

D. Observers will not be permitted in the event area while in progress.

E. No team, team member or team coach shall visit the event facilities to observe plant materials and facilities two weeks prior to the event. Any team, team member or coach reported and proven to do so will cause the elimination of the team.

F. Participants will be assigned to group leaders who will escort them to various event-staging sites. Each participant is to stay with his/her assigned group leader throughout the event or until told to change leaders by the event superintendent.

G. All participants will be given an identification number by which they will be designated throughout the event.

H. 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.

I. Any participant in possession of an electronic device in the event area is subject to disqualification.

J. Resources for the Practical Forestry CDE can be found at:

[https:// www.ffa.org/participate/ cdes /forestry/](https://www.ffa.org/participate/cdes/forestry/) and
[http://www.ydae.purdue.edu/natural resources /NR.CDEs/Forestry/index.html](http://www.ydae.purdue.edu/natural_resources/NR.CDEs/Forestry/index.html)



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V. Event Format

A. Individual Activities

1. General Knowledge Exam - 100 points

- Fifty (50) 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. Possible question banks can be found at the links listed in the previous section.
- Time: Each participant will be allowed up to 45 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 (20) live specimens, pressed samples, fresh leaf samples, standing trees and/or pictures, from the list below 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: Five points will be given for each specimen that is correctly identified for a maximum of 100 points.

3. Timber Cruising for Board Volume - 100 points

- Using tree measurement tools, each participant will measure ten pre-numbered trees in two plots for board foot volume. The participant must record the DBH (Diameter Breast Height) to the nearest one-inch class and the merchantable height of each tree height rounded down to the nearest $\frac{1}{2}$ log. Volume tables will be provided at the event.
- The following minimum diameters and log length will be:

Minimum Saw Timber

DBH	10 inches
Top Diameter	10 inches DIB
Height	16 feet

- Merchantable height stops are estimated to the upper point on a tree where it becomes 10 inches in diameter or where a major fork in a tree stem occurs or where a limb has a diameter equal to $\frac{1}{2}$ of the diameter of the tree at that point.
- Time: Each participant will be allowed 45 minutes to complete.
- Scoring: Seven points will be given for correctly determining the size in square feet of both plots. Thirty points will be given for the correct DBH, thirty points for the correct height, and twenty points for the correct board feet. Eight points will be given for the correctly determining the total board feet for each plot. Five points will be given for total board feet. 1 point will be deducted for each 5 percent deviation (plus or minus) from the correct measured vol.



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B. Individual Practicums - Participants will compete individually in at least three practicums from the following list. The event superintendent will designate practicums to be completed by the participant. Each participant will have 30 minutes to complete each practicum. **2023 Practicums: Timber Stand Improvement (TSI), Equipment ID, and Forest Products Practicum**

1. Timber Stand Improvements (TSI)

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

b. An area will be selected and identified by ribbons, paint, rope, etc. It will contain twenty-five (25) 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 will score each marked tree using one of the following options:

i. Harvest - utilize the tree

ii. Leave - the tree should remain in stand for a good reason

iii. Deaden - Undesirable tree, not merchantable or beneficial to wildlife, should be deadened or cut down and left in woods

c. The participants will be given a situation concerning the forest management objectives of the stand selected. This information will be given to participants at the site before they start. Information that will be needed to help participants in their decisions will include:

i. Markets available

ii. Wildlife considerations

iii. Present condition of stand

iv. Management plan

d. Scoring: A total of 100 points are possible for this practicum.

2. Equipment Identification Practicum

a. Twenty (25) pieces of equipment from the list below will be displayed for participants to identify by technical names. Each piece of equipment will be designated by number.

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

c. Scoring: Four points will be given for each piece of equipment identified correctly for a total of 100 points.



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3. Map Interpretation Practicum

- a. Participants will answer questions using a furnished United States Geological Survey topographic map. The participant should know legal description, recognize topographic map symbols, and understand the meaning of map symbols, size and location of 40 acres or more in a parcel.
- b. Examples:
 - i. What is the legal description of the boxed area?
 - ii. What is the item located at this point?
 - iii. What is the acreage of the area enclosed?
 - iv. In what section is the city of Marshall located?
 - v. What is the elevation at this point?
- c. Legal descriptions will be written or described according to the public land survey system.
- d. Example: SE 1A of NW $\frac{1}{4}$ of Section 3, T3N, R1E
- e. Scoring: Ten points will be given for each correct answer totaling 100 points.

4. Compass Practicum

- a. Participants 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 participant will start at any point and record the compass reading and distance to the next point. Azimuth readings shall be recorded.
- b. Scoring: A total of 100 points are possible for this practicum. 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.

5. Chainsaw Part Identification, Troubleshooting and Safety Practicum

- a. This practicum will consist of one or more of the parts below. Parts may utilize photos, video, demonstration, actual parts, written situations and/or problems. This is not an inclusive list.
 - i. Chainsaw parts identification- Each participant will identify parts of a chainsaw.
 - ii. Troubleshooting - The participant will identify chainsaw problems or troubles.
 - iii. Safety - The participant will identify safety hazards or unsafe practices.

- b. Scoring: A total of 100 points are possible for this practicum.

6. Tree/Forest Disorders Practicum

- a. Symptoms of at least ten (10) and not more than twenty (20) disorders from the list at the end of this chapter will be displayed for participants to identify by common names. The symptoms will be presented in one or more of the following forms:
 - i. Actual sample
 - ii. Pictures/slides
 - iii. Written description
 - iv. Written case history



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- b. A number will designate each set of symptoms representing a disorder.
- c. Scoring: A total of 100 points are possible for this practicum.

7- Forest Products Practicum

a. Ten (10) wood products/samples will be displayed for participants to evaluate and identify its tree species source from the tree identification specimen list. The wood products/samples will be presented in one or more of the following forms:

- i. Actual Sample
- ii. Pictures/slides
- iii. Written description

b. Scoring: This will be a multiple-choice practicum. A total of 100 points are possible for this practicum.

8. Forest Business Management Problem Practicum

a. This section is designed to determine the participant's 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.

b. Scoring: A total of 100 points are possible for this practicum.

C. Team Activity - 400 points

Each team will be provided with a forest industry scenario. The scenario will utilize components from the individual forestry CDE practicums. Teams must work together using forestry skills and tools to complete the team activity. Ninety (go) minutes will be allowed to plan and complete the activity. All supplies and materials needed to complete the task will be provided.

VI. Scoring

Phase of CDE	Individual	Team
General Knowledge Exam	100	400
Tree Identification	100	400
Timber Cruising	100	400
Forestry Practicums (3)	300	1200
Team Activity	0	400
Total Points Possible	600	2800

VII. Tiebreakers

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



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Tree Identification Specimen List (55 Trees of Indiana)

1. American basswood (*Tilia americana*)
2. American beech (*Fagus grandifolia*)
3. American elm (*Ulmus americana*)
4. Bitternut hickory (*Carya cordiformis*)
5. Black cherry (*Prunus serotina*)
6. Black gum/Black tupelo (*Nyssa sylvatica*)
- 7- Black locust (*Robinia pseudoacacia*)
8. Black maple (*Acer nigrum*)
9. Black oak (*Quercus velutina*)
10. Black walnut (*Juglans nigra*)
11. Black willow (*Salix nigra*)
12. Blue beech (*Carpinus caroliniana*)
13. Boxelder (*Acer negundo*)
14. Bur oak (*Quercus macrocarpa*)
15. Butternut (*Juglans cinerea*)
16. Chestnut oak (*Quercus prinus*)
- 17- Chinquapin oak (*Quercus muhlenbergii*)
18. Eastern cottonwood (*Populus deltoides*)
19. Eastern redbud (*Cercis canadensis*)
20. Eastern red cedar (*Juniperus virginiana*)
21. Eastern white pine (*Pinus strobus*)
22. Flowering dogwood (*Camus florida*)
23. Hackberry (*Celtis occidentalis*)
24. Honeylocust (*Gleditsia triacanthos*)
25. Ironwood (*Ostrya virginiana*)
26. Jack pine (*Pinus banksiana*)
- 27- Kentucky coffeetree (*Gymnocladus dioica*)
28. Largetooth/Bigtooth aspen (*Populus grandidentata*)
29. Mockernut hickory (*Carya tomentosa*)
30. Northern catalpa (*Catalpa speciosa*)
31. Northern red oak (*Quercus rubra*)
32. Ohio buckeye (*Aesculus glabra*)
33. Osage-orange (*Madura pomifera*)
34. Persimmon (*Diospyros virginiana*)
35. Pignut hickory (*Carya glabra*)
36. Pin oak (*Quercus palustris*)
- 37- Quaking aspen (*Populus tremuloides*)
38. Red maple (*Acer rubrum*)
39. Red mulberry (*Moms rubra*)
40. Red pine (*Pinus resinosa*)
41. River birch (*Betula nigra*)
42. Sassafras (*Sassafras albidum*)
43. Scotch pine (*Pinus sylvestris*)
- 44 Shagbark hickory (*Carya ovata*)
45. Shingle oak (*Quercus imbricaria*)
46. Silver maple (*Acer saccharinum*)
- 47- Slippery elm/Red elm (*Ulmus rubra*)
48. Sugar maple (*Acer saccharum*)
49. Swamp white oak (*Quercus bicolor*)
50. Sweetgum (*Liquidambar styraciflua*)
51. Sycamore (*Platanus occidentalis*)
52. Tuliptree/Yellow-poplar(*Liriodendron tulipifera*)
53. Virginia pine (*Pinus virginiana*)
54. White ash (*Fraxinus americana*)
55. White oak (*Quercus alba*)



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Equipment Identification List

1. Altimeter
2. Back-pack Fire Pump
3. Bark Gauge
- 4- Bulldozer
5. Canthook
6. Chainsaw
7. Chainsaw Chaps
8. Clinometer
9. Data Recorder
10. Densimeter
11. Diameter Tape
12. Dot Grid
13. Drip Torch
14. Endloader
15. Feller Buncher
16. Fiberglass Measuring Tape
- 17- Fire Rake
18. Fire Weather Kit
19. Fire-Swatter
20. Flow/current Meter
21. GPS Receiver
22. Hand Compass
23. Hand Lens/Field Microscope
24. Hip Chain
25. Hypo-Hatchet
26. Increment Borer
- 27- Log Rule
28. Logger's Tape
29. pH Meter
30. Planimeter
31. Plant Press
32. Plastic Flagging
33. Pulaski Forester AY..e
34. Relaskop
35. Safety Glasses
36. Safety Hard Hat
- 37- Soil Sampler
38. Soil Test Kit
39. Staff Compass
40. Stereoscope
41. Survey Instrument
42. Tally Book
43. Tally Meter
44. Tree Caliper
45. Tree Harvester
46. Tree Marking Gun
- 47- Tree Planting Hoe or Bar
48. Tree Skidder
49. Tree Stick
50. Water Sampler
51. Water Test Kit
52. Wedge Prism
53. Wheeler Caliper



Tree Disorders Identification List

1. Air pollution
2. Aphid
3. Beetles
4. Butt or Heart Rot
5. Canker
6. Chemical damage
7. Cicada
8. Climatic injury: snow, wind, frost, drought, hail
- g. Damping off
10. Douglas fir tussock moth
11. Emerald ash borer
12. Fire damage
13. Gypsy moth
14. Hemlock woolly adelgid
15. Landscape equipment damage
16. Lightning damage
17. Mechanical damage
18. Mistletoe
19. Nematode
20. Rust
21. Sawfly
22. Scale
23. Spruce budworm
24. Sunscald
25. Tent caterpillar
26. Wetwood or slime flux
- 27- Wildlife/Livestock damage
28. Wood borer