



# Forestry CDE

## Purpose

The purpose of the Forestry Career Development Event is to stimulate student interest and to promote forestry instruction in the agricultural education curriculum. By participating in this event, students gain an understanding of the economic impact of the forest environment and the forestry industry, while recognizing environmental and social factors affecting the management of forests.

## Sponsor

This event is currently sponsored by David and Beverly Harris, Wayne Community College, and NCSU College of Natural Resources.

## Superintendent

The superintendent for this event is Mr. Andy VonCanon, Western Region Agricultural Education Coordinator, Mountain Horticulture Crops Research and Extension Center, 455 Research Drive, Mills River, NC 28759, Phone: 828-553-6296 Fax: 828-684-8715 Email: andy\_voncanon@ncsu.edu

## Eligibility

This event is open to all FFA chapters and FFA members in good standing. FFA Members may not participate in a Career Development Event that leads to a state level event after July 1, following their high school/early college graduation. Members winning a previous state event in this area or that have participated in a previous national event in the area are ineligible.

The top three teams in the federation are eligible to participate in the regional event unless modified by the region. The top three individuals in the federation event are eligible to participate in the regional event as individuals regardless of their team placing. The top three individuals in the regional event are eligible to participate in the state event as individuals regardless of their team placing.

The appropriate numbers of teams based on event participation from each region are eligible to compete in the state career development event. The top three individuals in the regional event are eligible to participate in the state event as individuals regardless of their team placing. Teams and individuals advancing to state event participation must be certified by the regional FFA advisor. **Teams shall consist of three or four members. Four scores will count towards the team total (A three-member team will earn a zero for the 4<sup>th</sup> score).** No alternates are allowed in the state events. Any alternate found participating in a state event will result in a team disqualification.

The use or possession of cellular phones or any other mobile electronic communication device is prohibited during any state-level career development event. Any violation of this rule by any team member will result in total team disqualification.



The North Carolina FFA Association, in keeping with the FFA mission and purposes, does not permit the use of tobacco products, e-cigarettes, vapes, or Juuls at any FFA facility or at any FFA activity.

FFA members and advisors may not visit the site of the state career development event within seven days of the start of the event. Teams that violate this rule will be disqualified.

Any member found cheating in any state-level career development event will result in total team disqualification for that event.

At the North Carolina FFA State Convention, participation in more than one FFA CDE event is permitted as long as events are not being held concurrently and no special provisions are required to facilitate participation with the exception that parliamentary procedure and public speaking and parliamentary procedure and Creed speaking which are held concurrently will allow dual participation and special provisions for flighting.

In compliance with the Americans with Disabilities Act, NC FFA will honor requests for reasonable accommodations made by individuals with disabilities. Please direct accommodation requests to: Carmen Bracey at carmen\_bracey@ncsu.edu. Requests can be served more effectively if notice is provided at least 10 days before the event.

## **Middle School Participation**

Middle school students and teams may participate in any Career Development Event or Leadership Development Event. The top three middle school participants will be recognized in each division of an event. Middle school participants should designate during registration.

## **Dress Code**

Participants are required to follow the North Carolina FFA Career Development Event Dress Code. Participants are allowed to wear long pants, an appropriate shirt with a collar or an appropriate high school or FFA t-shirt.

***The North Carolina FFA Association strives to promote a positive image at all Official FFA Events. The dress code policy was established to address the issue of appropriate attire at all Official FFA Events. Members should adhere to this policy for all events. A ten percent reduction will be applied to all individual scores from a chapter if a participant from that chapter violates the dress code during that career event.***

## **Procedures for Administering the Event**

The event will consist of four sections, with each member of the team participating in all sections. No two members of any one team will participate in the same section at the same time.

Each section of the event will have a maximum time limit of thirty (30) minutes, requiring orderly movement of all participants in sequence from the section that they were assigned at the beginning.



Participants are expected to bring the following items:

- Tree Scale Stick (Biltmore Stick)
- Clipboard
- Pencil
- Handheld Calculator
- Compass

No additional equipment or tools are allowed for use.

FFA members participating in career development events that require the use of calculators may only use non programmable/graphing calculators that do not have the ability to communicate with other calculators. Calculators will be screened prior to the start of a CDE for acceptability. Students caught using data stored on a calculator or communicating with other calculators will result in a total team disqualification for the event.

The four sections of the Forestry CDE are:

### **Part 1: Timber Cruising for Board Volume (Saw Timber)**

Each participant will provide his or her own scale stick. Calipers, diameter tapes or other measuring instruments will not be allowed at the federation, regional, or state level.

The official saw timber tally card is based on the International 1/4 inch Rule Form Class 78 and is included in the supplemental material on subsequent pages. Estimates will be made to the nearest half log (eight feet) of merchantable timber and to inch diameter classes on each tree recorded. The cutoff point at the top of the tree will be a minimum diameter of eight inches (8") or at the point where merchantability stops due to limbs or other defects. Tree heights can exceed 4 logs.

Standing trees will be tagged with numbers. The total board feet of each tree will be computed and recorded but only the total volume determined by the participant will be graded.

The tally sheet will be turned in to the designated official at the end of the 30-minute time period. The total possible points for this section will be one hundred (100) points. One point will be deducted for each ten (10) board feet of variance from the total volume as determined by the event officials.

Minimums: DBH 10 inches, 1" diameter classes

Top Diameter: 8"

Log Height 16'; Round to the nearest ½ log

### **Part 2: Orienteering Practicum**

Each participant will pace the marked property lines of a simulated tract of timber. They will use a hand compass to determine the Azimuth reading and pacing to determine the distance between property markers. Participants will begin at a starting point and record the distance and Azimuth reading to the next point on the scorecard. Each distance measurement and Azimuth reading is worth ten (10) points.



One half of a point (0.5) will be deducted for each degree and each foot the participant is off the correct answer. There will be a total of five lengths measured as property lines. A maximum of 10 points can be deducted from each answer. Total possible points for this section will be one hundred (100) points.

### **Part 3: Tree Identification**

Each participant will identify twenty (20) trees. Trees common to the area should be used for local and federation events, but at the regional and state level, any of the trees on the official list can be used. A tree species may be used more than once if necessary. Trees will be numbered 1 to 20. Participants are to write the appropriate number in the correct space on the tree identification answer sheet. The total possible points for this section will be one hundred (100) points. Five (5) points will be deducted for each incorrect answer.

### **Part 4: Forestry Equipment Identification**

Each participant will identify twenty (20) tools from the approved equipment list. Each tool is worth five (5) points. The total possible points for this section will be one hundred (100) points.

### **Scoring**

<i>Maximum Score</i>	400
Timber Cruising (Saw Timber)	100
Orienteering Practicum	100
Tree Identification	100
Equipment Identification	100

### **Procedure for Determining the State Event Winner When Scores are Tied**

In the event a tie score exists, apply the following methods in sequential order until the tie is broken:

1. Compare the total team scores for the tree identification component and the higher scoring team is the winner.
2. Compare the total team scores for the equipment identification component and the higher scoring team is the winner.
3. Compare the total team score for the saw timber component and the higher scoring team is the winner.
4. Compare the total team score for the orienteering practicum component and the higher scoring team is the winner.
5. If these methods fail to break the tie, co-winners will be declared and a run-off event will be held to determine which team will represent North Carolina at the National FFA Convention. The run-off event will follow the same rules as the state event.

Special Note: In the event a tie exists between first, second or third place teams on the regional level, the tied teams will be allowed to participate in the state event. In the event a tie exists in a federation event that sends teams directly to state competition, the tied teams will be allowed to participate in the state event.



## **Procedure to Determine the High Scoring Individual When Scores are Tied**

In the event a tie score exists, apply the following methods in sequential order until the tie is broken:

1. Compare the individual scores for the tree identification component and the higher scoring contestant is the winner.
2. Compare the individual scores for the equipment identification component and the higher scoring contestant is the winner.
3. Compare the individual score for the saw timber component and the higher scoring contestant is the winner.
4. Compare the individual score for the orienteering practicum component and the higher scoring contestant is the winner.
5. If these methods fail to break the tie, co-winners will be declared.

## **State Awards**

The awards for the state event will be presented annually at the state FFA convention to include a team 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> place plaque and a travel monetary award. The high scoring individual will receive a plaque.

## **National Career Development Event Participation**

State winning teams advancing to the national career development event will be automatically registered for the national event. It is the responsibility of the FFA Chapter Advisor to complete all necessary national certification and waiver forms and return them to the state FFA Coordinator by the assigned due date.

State winning CDE teams that choose not to participate at the national level should contact the state office by Sept 1 prior to National Convention. Teams that fail to inform the state office prior to Sept 1 will be ineligible to participate in that same CDE for the next year (chapters may appeal to the State FFA Board of Directors). Teams that do not compete at the National Convention will be required to pay back the travel award.

TREE MEASUREMENT-TIMBER CRUISING FOR BOARD VOLUME  
(SAWTIMBER ESTIMATION)  
FORESTRY CAREER DEVELOPMENT EVENT

Tree Measurement-Timber Cruising  
for Board Volume Tally Sheet

Tree Diameter	Gross Volume of Tree, International 1/4 Inch Rule Form Class 78									
	Volume (Board Feet) by Number of Usable 16 Foot Logs									
	1	1.5	2	2.5	3	3.5	4	4.5	5	
10	36	48	59	66	73					
11	46	61	76	88	96					
12	56	74	92	106	120	128	137			
13	67	90	112	130	147	158	168			
14	78	105	132	153	174	187	200			
15	92	124	156	182	206	225	242			
16	106	143	180	210	241	263	285			
17	121	164	206	242	278	304	330			
18	136	184	233	274	314	344	374			
19	154	209	264	311	358	392	427			
20	171	234	296	348	401	440	480	511	542	
21	191	262	332	391	450	496	542	579	616	
22	211	290	368	434	500	552	603	647	691	
23	231	318	404	478	552	608	663	714	766	
24	251	346	441	523	605	664	723	782	840	
25	275	380	484	574	665	732	800	865	930	
26	299	414	528	626	725	801	877	949	1021	
27	323	448	572	680	788	870	952	1032	1111	
28	347	482	616	733	850	938	1027	1114	1201	
29	375	521	667	794	920	1016	1112	1210	1308	
30	403	560	718	854	991	1094	1198	1306	1415	
31	432	602	772	921	1070	1184	1299	1412	1526	
32	462	644	826	988	1149	1274	1400	1518	1637	
33	492	686	880	1053	1226	1360	1495	1622	1750	
34	521	728	934	1119	1304	1447	1590	1727	1864	
5	555	776	998	1196	1394	1548	1702	1851	2000	
36	589	826	1063	1274	1485	1650	1814	1974	2135	
37	622	873	1124	1351	1578	1752	1926	2099	2272	
38	656	921	1186	1428	1670	1854	2038	2224	2410	
39	694	976	1258	1514	1769	1968	2166	2359	2552	
40	731	1030	1329	1598	1868	2081	2294	2494	2693	

Tree Number	Diameter (Inches)	Number Logs	Volume Board Feet
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
		Total Volume Board Feet	

100 Point Total-One point deducted for each 10 BF of variance from the total volume as determined by officials.

Participant Name: \_\_\_\_\_ Number: \_\_\_\_\_  
Chapter: \_\_\_\_\_ SCORE \_\_\_\_\_

EQUIPMENT IDENTIFICATION  
FORESTRY CAREER DEVELOPMENT EVENT

Instructions: Equipment will be numbered 1-20. The contestant is to write the appropriate number in the space to the left of the tool. Each correct answer is worth 5 points.

- |                                  |                                |
|----------------------------------|--------------------------------|
| _____ Altimeter                  | _____ pH Meter                 |
| _____ Back-pack Fire Pump        | _____ Planimeter               |
| _____ Bark Gauge                 | _____ Plant Press              |
| _____ Canthook                   | _____ Plastic Flagging         |
| _____ Carabiner                  | _____ Pole Saw                 |
| _____ Chainsaw                   | _____ Pruning Saw              |
| _____ Chainsaw Chaps             | _____ Pulaski Axe              |
| _____ Clinometer                 | _____ Relaskop                 |
| _____ Data Recorder              | _____ Safety Glasses           |
| _____ Densimeter                 | _____ Safety Hard Hat          |
| _____ Diameter Tape              | _____ Scale stick              |
| _____ Drip Torch                 | _____ Secchi disc              |
| _____ Dot Grid                   | _____ Soil Sampler             |
| _____ Felling wedge              | _____ Soil Test Kit            |
| _____ Fiberglass Measuring Tape  | _____ Staff Compass            |
| _____ Fire Rake                  | _____ Stereoscope              |
| _____ Fire-Swatter               | _____ Survey Instrument        |
| _____ Fire Weather Kit           | _____ Tally Book               |
| _____ Flow/current Meter         | _____ Tally Meter              |
| _____ GPS Receiver               | _____ Timber Tongs             |
| _____ Hand Compass               | _____ Tree Caliper             |
| _____ Hand Lens/Field Microscope | _____ Tree Marking Gun         |
| _____ Hip Chain                  | _____ Tree Planting Hoe or Bar |
| _____ Hypo-Hatchet               | _____ Water Sampler            |
| _____ Increment Borer            | _____ Water Test Kit           |
| _____ Log Rule                   | _____ Wedge Prism              |
| _____ Logger's Tape              | _____ Wheeler Caliper          |
| _____ Maul                       |                                |

Participant Name: \_\_\_\_\_ Participant Number: \_\_\_\_\_

Chapter: \_\_\_\_\_ SCORE: \_\_\_\_\_

TREE IDENTIFICATION  
FORESTRY CAREER DEVELOPMENT EVENT

The total possible points for this section will be one hundred (100) points. Each correct answer will be worth five (5) points.

- |   |  |
|---|--|
| _____ American Holly ( <i>Ilex opaca</i> )                                      | _____ Northern Red Oak ( <i>Quercus rubra</i> )        |
| _____ Ash ( <i>Fraxinus sp.</i> )   | _____ Pecan ( <i>Carya illinoensis</i> )               |
| _____ Bald Cypress ( <i>Taxodium distichum</i> )                                | _____ Persimmon ( <i>Diospyros virginiana</i> )        |
| _____ Beech ( <i>Fagus americana</i> )  | _____ Post Oak ( <i>Quercus stellata</i> )             |
| _____ Birch ( <i>Betula nigra</i> )   | _____ Red Cedar ( <i>Juniperus virginiana</i> )        |
| _____ Black Cherry ( <i>Prunus serotina</i> )                                   | _____ Red Maple ( <i>Acer rubrum</i> )                 |
| _____ Blackgum ( <i>Nyssa sylvatica</i> )                                       | _____ Redbud ( <i>Cercis canadensis</i> )              |
| _____ Black Oak ( <i>Quercus velutina</i> )                                     | _____ Shortleaf Pine ( <i>Pinus echinata</i> )         |
| _____ Black Walnut ( <i>Juglans nigra</i> )                                     | _____ Sourwood ( <i>Oxydendrum arboreum</i> )          |
| _____ Chestnut Oak ( <i>Quercus montana</i> )                                   | _____ Southern Red Oak ( <i>Quercus falcata</i> )      |
| _____ Cottonwood ( <i>Populus deltoides</i> )                                   | _____ Sugar Maple ( <i>Acer saccharum</i> )            |
| _____ Dogwood ( <i>Cornus florida</i> )   | _____ Sweetgum ( <i>Liquidambar styraciflua</i> )      |
| _____ Elm ( <i>Ulmus sp.</i> )  | _____ Sycamore ( <i>Platanus sp.</i> )                 |
| _____ Fraser Fir ( <i>Abies fraseri</i> )                                       | _____ Virginia Pine ( <i>Pinus virginiana</i> )        |
| _____ Hemlock ( <i>Tsuga canadensis</i> )                                       | _____ Water Oak ( <i>Quercus nigra</i> )               |
| _____ Hickory ( <i>Carya sp.</i> )  | _____ White Oak ( <i>Quercus alba</i> )                |
| _____ Loblolly Pine ( <i>Pinus taeda</i> )                                      | _____ White Pine ( <i>Pinus strobus</i> )              |
| _____ Locust ( <i>Robinia pseudoacacia</i> or<br><i>Gleditsia triacanthos</i> ) | _____ Willow Oak ( <i>Quercus phellos</i> )            |
| _____ Longleaf Pine ( <i>Pinus palustris</i> )                                  | _____ Yellow Poplar ( <i>Liriodendron tulipifera</i> ) |

Participant Name: \_\_\_\_\_ Participant Number: \_\_\_\_\_

Chapter: \_\_\_\_\_ SCORE: \_\_\_\_\_



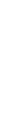
ORIENTEERING PRACTICUM  
FORESTRY CAREER DEVELOPMENT EVENT

Instructions: 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. Begin at THE starting mark and record the distance and Azimuth reading to the next mark. Each measurement is worth ten (10) points. One half of a point (0.5) will be deducted for each degree and each foot the participant is off the correct answer. A maximum of 10 points can be deducted for each answer.

	<u>Distance in Feet</u>	<u>Score</u>	<u>Azimuth Reading</u>	<u>Score</u>
1. Point A to Point B	_____	_____	_____	_____
2. Point B to Point C	_____	_____	_____	_____
3. Point C to Point D	_____	_____	_____	_____
4. Point D to Point E	_____	_____	_____	_____
5. Point E to Point A	_____	_____	_____	_____
	Total	_____	Total	_____
			Total Score	_____

Participant Name: \_\_\_\_\_ Participant Number: \_\_\_\_\_

Chapter: \_\_\_\_\_



# Sample of Orienteering Layout

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