

**HORTICULTURE  
FRUIT/NUT & VEGETABLE  
FIELD TECHNICIAN  
SKILLS STANDARDS  
OD36203**



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## ***COMPETENCY-BASED EDUCATION: OKLAHOMA'S RECIPE FOR SUCCESS***

### ***BY THE INDUSTRY FOR THE INDUSTRY***

Oklahoma's *CareerTech* system of competency-based education uses industry professionals and certification standards to identify the knowledge and abilities needed to master an occupation. This industry input provides the foundation for development of instructional materials that help prepare the comprehensively trained, highly skilled employees demanded by our workplace partners.

### ***TOOLS FOR SUCCESS***

*CareerTech* relies on three basic instructional components to deliver competency-based instruction: skills standards, curriculum materials, and competency assessments.

**Skills standards** provide the foundation for competency-based instruction in Oklahoma's *CareerTech* system. The skills standards outline the knowledge, skills, and abilities needed to perform related jobs within an industry. Skills standards are aligned with national skills standards; therefore, a student trained to the skills standards possesses technical skills that make him/her employable in both state and national job markets.

**Curriculum materials** contain information and activities that teach students the knowledge and skills outlined in the skills standards. In addition to complementing classroom instruction, curriculum resources provide supplemental activities to enhance learning and provide hands-on training experiences.

**Competency Assessments** test the student over material outlined in the skills standards and taught using the curriculum materials. When used with classroom performance evaluations, written competency assessments provide a means of measuring occupational readiness.

Although each of these components satisfy a unique purpose in competency-based education, they work together to reinforce the skills and abilities students need to gain employment and succeed on the job.

### ***MEASURING SUCCESS***

Written competency assessments are used to evaluate student performance. Results reports communicate competency assessment scores to students and provide a breakdown of assessment results by duty area. The results breakdown shows how well the student has mastered skills needed to perform major job functions and identifies areas of job responsibility that may require additional instruction and/or training.

Group analysis of student results also provides feedback to instructors seeking to improve the effectiveness of career and technology training. Performance patterns in individual duties indicate opportunities to evaluate training methods and customize instruction.

### ***TRUE TO OUR PURPOSE***

"Helping Oklahomans succeed in the workplace" defines the mission of Oklahoma *CareerTech* and its competency-based system of instruction. Skills standards, curriculum, and assessments that identify and reinforce industry expectations provide accountability for programs and assure *CareerTech*'s continued role in preparing skilled workers for a global job market

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Oklahoma Department of Career and Technology Education  
Stillwater, Oklahoma

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**HORTICULTURE  
FRUIT/NUT & VEGETABLE/FIELD TECHNICIAN  
SKILLS STANDARDS  
Frequency and Criticality Ratings**

- Duty A: Utilize Employability Skills
- Duty B: Perform Clerical/Administrative Functions
- Duty C: Prepare Soil and Growing Media
- Duty D: Propagate and Establish Horticultural Plants
- Duty E: Grow Plants
- Duty F: Monitor/Control Disease, Weeds, and Pests
- Duty G: Irrigate Crops
- Duty H: Harvest Product
- Duty I: Store, Ship, Take Inventory, and Maintain Merchandise
- Duty J: Sell Products
- Duty K: Operate and Maintain Equipment
- Duty L: Utilize Safety Procedures

**Frequency:** ---  
represents how often the task is performed on the job. Frequency rating scales vary for different occupations. The rating scale used in this publication is presented below:

- 1 = less than once a week
- 2 = at least once a week
- 3 = once or more a day

**Criticality:** denotes the level of consequence associated with performing a task incorrectly. The rating scale used in this publication is presented below:

- 1 = slight
- 2 = moderate
- 3 = extreme

**DUTY A: Utilize Employability Skills**

CODE	TASK	F/C
A.01	Arrive on time to work	3/3
A.02	Use initiative, when applicable	3/2
A.03	Work ethic, attendance	3/3
A.04	Maintain a courteous and responsive attitude toward all customers and co-workers	3/3
A.05	Demonstrate professionalism	3/3
A.06	Compose written communication legibly using correct grammar, spelling, and format	2/2
A.07	Interpret and follow written and oral directions	3/3
A.08	Respond appropriately to compliments, complaints, conflicts, and criticism	3/2

A.09	Apply customer relations skills	1/2
A.10	Carry out duties in a prompt manner	2/2
A.11	Estimate product value and amount <ul style="list-style-type: none"> <li>• Basic math skills</li> </ul>	3/3

**DUTY B: Perform Clerical/Administrative Functions**

CODE	TASK	F/C
B.01	Monitor supply and stock inventory <ul style="list-style-type: none"> <li>• Record keeping</li> <li>• Balance sheets</li> <li>• Spreadsheets</li> </ul>	1/1
B.02	Maintain equipment inventory	1/1
B.03	Store stock and supplies	2/2
B.04	Use basic computer skills	2/2
B.05	Maintain chemical inventory and log <ul style="list-style-type: none"> <li>• Material Safety Data Sheets (MSDS)</li> </ul>	3/3

**DUTY C: Prepare Soil and Growing Media**

CODE	TASK	F/C
C.01	Collect soil samples and interpret results	1/2
C.02	Mix growing media <ul style="list-style-type: none"> <li>• Growing media components</li> <li>• pH levels</li> </ul>	2/2
C.03	Keep and maintain records	1/3
C.04	Dispose of media	1/2
C.05	Incorporate/apply fertilizer into growing media	1/3
C.06	Store plant material (coolers, inside) or prepare for winter	1/3
C.07	Haul topsoil	1/2
C.08	Spread topsoil to establish a grade <ul style="list-style-type: none"> <li>• Operate a transit</li> </ul>	1/1
C.09	Incorporate soil amendments <ul style="list-style-type: none"> <li>• Change soil pH</li> </ul>	1/2
C.10	Prepare seedbed/pot	1/2
C.11	Prepare flats	1/1
C.12	Calculate fertilizer formula	1/2

**DUTY D: Propagate and Establish Horticulture Plants**

CODE	TASK	F/C
D.01	Test seeds for germination percentage <ul style="list-style-type: none"> <li>• Percentages</li> <li>• Calculate amount</li> <li>• Metric conversions</li> </ul>	1/1
D.02	Sow seeds	2/2
D.03	Store seeds	1/3

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	<ul style="list-style-type: none"> <li>• Mechanisms that keep seeds viable</li> </ul>	
D.04	Stratify seeds	1/2
D.05	Harden off seedlings	1/3
D.06	Transplant seedlings	1/3
D.07	Take and label cuttings <ul style="list-style-type: none"> <li>• Label legibly</li> <li>• Moisture resistant pen</li> </ul>	3/3
D.08	Topwork trees	1/2
D.09	Graft trees	1/2
D.10	Propagate plants using layering	1/2
D.11	Use reference materials to find spacing for species during propagation	1/1
D.12	Label planted specimens	2/3
D.13	Plant shrubs and trees <ul style="list-style-type: none"> <li>• Bare-root</li> <li>• Container</li> <li>• Balled &amp; Burlap</li> </ul>	2/2
D.14	Transplant plant materials to the field	2/2

**DUTY E: Grow Plants**

CODE	TASK	F/C
E.01	Thin fruit <ul style="list-style-type: none"> <li>• Hard</li> <li>• Mechanical</li> <li>• Chemical</li> </ul>	2/2
E.02	Thin plants <ul style="list-style-type: none"> <li>• Hard</li> <li>• Mechanical</li> <li>• Chemical</li> </ul>	1/2
E.03	Prune plants	1/3
E.04	Prune trees	1/3
E.05	Layer weed barrier <ul style="list-style-type: none"> <li>• Permeable vs. poly</li> </ul>	1/2
E.06	Plant cover crops <ul style="list-style-type: none"> <li>• Clovers and other legumes</li> <li>• Maturity</li> <li>• Timing</li> <li>• Planning</li> </ul>	2/2
E.07	Apply mulch to a planting bed <ul style="list-style-type: none"> <li>• Purpose <ul style="list-style-type: none"> <li>• Controls temperature</li> <li>• Weeds</li> <li>• Moisture</li> <li>• Cleanliness of fruit</li> </ul> </li> </ul>	1/1
E.08	Stake plants	1/2
E.09	Pinch plants	1/3
E.10	Take leaf sample	1/2
E.11	Prepare fertilizer solution	1/3

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	<ul style="list-style-type: none"> <li>• Dilution rates</li> <li>• Irrigation system timing</li> <li>• Fertilizers</li> </ul>	
E.12	Fertilize plants	1/3
E.13	Remove and report dead plants	1/2
E.14	Monitor plant wounds <ul style="list-style-type: none"> <li>• Recognize causes of wound             <ul style="list-style-type: none"> <li>• Mechanical</li> <li>• Insect/pest</li> </ul> </li> </ul>	2/2

**DUTY F: Monitor/Control Disease, Weeds, and Pests**

CODE	TASK	F/C
F.01	Recognize common weed species	3/3
F.02	Remove weeds <ul style="list-style-type: none"> <li>• Manually</li> <li>• With power tools</li> <li>• With tractor drawn mechanical cultivators</li> </ul>	3/3
F.03	Dust crops	1/3
F.04	Apply herbicides <ul style="list-style-type: none"> <li>• Qualifications needed to apply herbicides</li> </ul>	1/3
F.05	Control animal pests <ul style="list-style-type: none"> <li>• Seasons</li> <li>• Protection laws</li> <li>• Types of traps</li> </ul>	1/3
F.06	Set out poisoned bait to eradicate rodents	1/3
F.07	Clean spray equipment after use	1/3
F.08	Recognize and report disease and insect damage	2/2
F.09	Monitor insects and use results to control pests <ul style="list-style-type: none"> <li>• Concepts of Integrated Pest Management</li> </ul>	1/2
F.10	Set out traps to monitor pests	1/1
F.11	Build traps <ul style="list-style-type: none"> <li>• Teddars and cone traps</li> <li>• Install pheromone</li> </ul>	1/1
F.12	Mix and apply chemicals <ul style="list-style-type: none"> <li>• Proper methods of mixing</li> <li>• Disposal of chemicals and containers</li> <li>• Stickers, spreaders</li> </ul>	2/3
F.13	Spray diseased plants <ul style="list-style-type: none"> <li>• Dangers of overspraying</li> <li>• Problems of underspraying</li> </ul>	1/3
F.14	Identify and report spray damage	1/2
F.15	Report and remove diseased plants	1/3
F.16	Demonstrate first-aid treatment for pesticides <ul style="list-style-type: none"> <li>• Read labels and instructions on pesticides</li> <li>• Use eyewash</li> </ul>	3/3

**DUTY G: Irrigate Crops**

CODE	TASK	F/C
G.01	Read a tensiometer <ul style="list-style-type: none"> <li>Record readings</li> </ul>	1/1
G.02	Turn water on and off	3/3
G.03	Repair irrigation equipment <ul style="list-style-type: none"> <li>Basic repairs <ul style="list-style-type: none"> <li>drip</li> <li>overhead</li> <li>pivot</li> <li>wheel</li> <li>flood</li> </ul> </li> </ul>	2/2
G.04	Install parts of an irrigation system <ul style="list-style-type: none"> <li>Lay lines</li> <li>PVC fittings</li> <li>Winterize</li> <li>Frost protection</li> </ul>	1/2
G.05	Set time control valves (clocks)	1/2
G.06	Regulate overhead irrigation system <ul style="list-style-type: none"> <li>Time clocks</li> <li>Mist system</li> </ul>	1/3
G.07	Regulate drip irrigation system	1/3
G.08	Irrigate field grown plants	2/3
G.09	Identify water requirements of various crops	3/3

**DUTY H: Harvest Product**

CODE	TASK	F/C
H.01	Prepare orchard floor <ul style="list-style-type: none"> <li>Cultivate rows</li> </ul>	1/2
H.02	Gather containers	1/2
H.03	Harvest product <ul style="list-style-type: none"> <li>methodology</li> <li>overview of horticultural crops and how they are harvested (peaches, pecans)</li> <li>Mechanical harvesting</li> </ul>	3/3
H.04	Post harvest handling of product <ul style="list-style-type: none"> <li>Grade and clean product</li> <li>Package product</li> </ul>	2/2

**DUTY I: Store, Ship, Take Inventory, and Maintain Merchandise**

CODE	TASK	F/C
I.01	Keep current inventory of products	3/2
I.02	Load delivery vehicle	3/2
I.03	Deliver products to customer	3/2
I.04	Bunch, pack, and/or wrap products for shipment <ul style="list-style-type: none"> <li>Temperature and moisture requirements</li> </ul>	3/2
I.05	Store products	2/2

	<ul style="list-style-type: none"> <li>• Temperature and moisture requirements</li> </ul>	
I.06	Assemble shipping containers	3/2
I.07	Package orders for shipment	3/2

**DUTY J: Sell Products**

CODE	TASK	F/C
J.01	Stock shelves and maintain quality control	3/2
J.02	Label harvested products by variety	3/3
J.03	Write and report customer's telephone orders	3/3
J.04	Build displays (counter and table-top)	2/2
J.05	Complete sales invoice	3/3
J.06	Present sales information to customer <ul style="list-style-type: none"> <li>• Pricing</li> <li>• Product knowledge</li> <li>• Culture information</li> </ul>	3/3
J.07	Keep grounds attractive and clean	2/2

**DUTY K: Operate and Maintain Equipment**

CODE	TASK	F/C
K.01	Prepare soil with tillage equipment	1/2
K.02	Calibrate a sprayer	1/3
K.03	Operate equipment	3/3
K.04	Maintain equipment <ul style="list-style-type: none"> <li>• Sharpen blades</li> <li>• Service drive belts</li> <li>• Clean equipment</li> </ul>	3/3
K.05	Lubricate equipment	3/3
K.06	Report malfunctions, failure, and/or damage of equipment	3/3
K.07	Prepare equipment for winter storage	1/2

**DUTY L: Utilize Safety Procedures**

CODE	TASK	F/C
L.01	Use safety with chemicals <ul style="list-style-type: none"> <li>• Handling</li> <li>• Storage</li> <li>• Personal Protective Equipment (PPE)</li> <li>• Material Safety Data Sheets (MSDS)</li> </ul>	3/3
L.02	Use personal and equipment safety <ul style="list-style-type: none"> <li>• Shields</li> <li>• Guards</li> <li>• Safety equipment</li> <li>• Proper clothing</li> </ul>	3/3
L.03	Use general safety <ul style="list-style-type: none"> <li>• Lifting</li> <li>• Slips, trips and falls</li> </ul>	3/3