



NEW JERSEY FFA

CAREER AND LEADERSHIP
DEVELOPMENT EVENTS

Agronomy

2017-2021

Purpose

The purpose of the New Jersey FFA Agronomy Career Development Event is to create interest and promote understanding in agronomy by providing opportunities for recognition through the demonstration of skills and proficiencies. It also gives students an opportunity to explore career opportunities available in agronomy and encourage students to pursue careers in agronomy.

Objectives

Through participation in the state event, participants will be able to:

- To demonstrate knowledge and skills used in agronomic sciences.
- To explore career opportunities, skills and proficiencies in the agronomy industry.
- To determine the ability to identify agronomic:
 - Crops
 - Weeds
 - Seeds
 - Insects
 - Diseases
 - Plant nutrient deficiencies
 - Plant disorders
 - Crop grading and pricing
 - Equipment
 - Agronomy – Local, state and global issues
- To evaluate a scenario and develop a crop management plan including crop selection, production and marketing.
- To demonstrate understanding of sustainable agriculture and environmental stewardship through the use of integrated pest management and best management practices.

NOTE: All rules and format are subject to change by discretion of the PA FFA Day officials and event coordinators. Those changes will be communicated through the event coordinators prior to the event. Please use this handbook as a guide, not as a guarantee of format.

Event Rules

TEAM MAKE-UP

- Four members will be on each team. All four members will be scored, and all four scores will count toward the team total.
- It is highly recommended that participants wear official FFA dress for each event.
- All participants will be given an identification number by which they will be designated throughout the event.
- Under no circumstances will a participant be allowed to destroy any of the items in the identification portion of the practicums. Any infractions of this rule will be sufficient to eliminate a team from the event.

WRITTEN MATERIAL

- All written material will be furnished for the event. No written materials such as tests, problems and worksheets should be removed from the site.
- Any participant in possession of an electronic device in the event area is subject to disqualification.

Event Format

Materials students must provide:

- Clean, free of notes clipboard
- Two sharpened No. 2 pencils
- Non-programmable electronic calculator
 - The calculators used during the event are to be battery operated, non-programmable, silent with large keys and large displays. The calculators should only have 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.

INDIVIDUAL ACTIVITIES

GENERAL KNOWLEDGE EXAMINATION (100 POINTS)

Fifty objective multiple choice questions will be given to each participant. Questions may include, but are not limited to, the following areas: general agronomy questions, plant and soils science, cost sheets, seed tag information, tillage practices, pesticide labels, extension bulletins, fertility reports, tissue analysis, contract information, water management, seeding rates, variety information, trial data and application/calibration information for nozzle selection, chemigation, fertigation and aerial application.

IDENTIFICATION (150 POINTS)

Students will identify 50 weed and/or crop plants and/or seeds. Plants may be presented in any stage of growth following emergence. The list of possible specimens is in the reference section of the handbook.

SOILS (100 POINTS)

Each participant will be responsible for the following activities related to soils:

- Identify various soil structures: web soil survey, custom soil resource report, soil maps.
- Analyze web soil survey data and answer questions related to:
 - Relative drainage (e.g., poor, moderate, well)
 - Relative topographic position (e.g., summit, slope, depression)
 - Depth to water table
 - Frost free period
 - Identify the USDA land capability classes and answer problem solving questions related to various classes.
 - Use soil survey to locate specific sites, use of suggested soil spots and questions related to the soil survey map.

COMMODITY EVALUATION (100 POINTS)

Participants will evaluate two judging classes of forage. These evaluations will be broken down into three different categories representing different aspects of quality: variety selection, marketability and usability.

PEST MANAGEMENT (200 POINTS)**Disorders (100 points)**

- Ten samples will be identified according to category, causal agent and damage location. Refer to the Agronomic Disorders Practicum Scorecard for the category, agent and damage location lists.

Insect Identification (100 points)

- Ten samples will be identified according to insect name, life cycle, economic impact and mouth part. Refer to the Insect Identification Practicum Scorecard for additional details.

EQUIPMENT AND MACHINERY IDENTIFICATION (100 POINTS)

- Participants will be required to identify 20 specimens from the list in the reference section of the handbook. Samples may appear as actual equipment, scale models, toys or pictures. Major component that are unique to a certain piece of equipment can also be used.
- Identification samples will be of the complete item. There will be no identification of individual parts/pieces.

Scoring

Participant scores are the sum of the individual phases of the event, and team scores are the sum of the four participant scores.

ACTIVITIES	Individual Points	Team Points
Written Exam	100	400
Identification	150	600
Soils	100	400
Commodity	100	400
Pest Management	200	800
Equipment and Machinery Identification	100	400
Total Points	750	3,000

TIEBREAKERS

If ties occur for team awards the following events will be used to determine the placings:

1. Total Written Exam

If ties occur for individual awards the following events will be used to determine the placings:

1. Written Exam
2. Plant and Seed Identification
3. Soils

Awards

Awards will be presented to individuals and the first team based on their rankings at the CDE awards ceremony at the New Jersey State FFA Convention. Awards are sponsored by the National FFA Foundation and the New Jersey FFA Association.

The 1st place team will represent New Jersey at the National FFA Convention in October (if 60% mastery is met).

Individual

- Overall Medals
 - Medals – Top three individuals
- H.O. Sampson Certificates (hands-on sections ONLY)
 - Certificate – Top five individuals

Team

- Plaque Sponsored by the National FFA Foundation – 1st place

References

This list of references is not intended to be all inclusive.

Other sources may be utilized, and teachers are encouraged to make use of the very best instructional materials available. Make sure to use discretion when selecting website references by only using reputable, proven sites. The following list contains references that may prove helpful during event preparation. The most current edition of resources will be used.

- Past CDE materials and other resources <https://www.FFA.org/participate/cdes/agronomy>

PLANT IDENTIFICATION

- Flash cards for both seeds and plants are available through Wards Natural Science Establishment wardsci.com.
- Weeds of the Northeast, Comstock Books, by Richard H. Uva (Author), Joseph C. Neal (Author), Joseph M. Ditomaso (Author).
- Weeds of the Great Plains, Nebraska Department of Agriculture by James L Stubbendieck (Author)
- Weeds of the West, University of Wyoming Extension, by Tom D. Whitson (Editor)
- Common Weed Seedlings of the North Central States, Michigan State University Extension
- Sunset Western Garden Book
- An Illustrated Guide to Arizona Weeds, University of Arizona, <https://www.uapress.arizona.edu/onlinebks/WEEDS/TITLWEED.HTM>
- Weeds of California and Other Western States University of California
- Interactive Encyclopedia of Weeds of North America, North Central Weed Science Society

- <http://plants.usda.gov/>
- <http://www.ppws.vt.edu/weedindex.html>
- http://www.ipm.ucdavis.edu/PMG/weeds_multi.html
- <http://wssa.net/weed/weed-identification/>

SEED IDENTIFICATION

- Illustrated Taxonomy Manual of Weed Seeds, North Central Weed Science Society
- Weed Seeds of the Great Plains, University Press of Kansas
- <http://www.oardc.ohio-state.edu/seedid/>
- <http://plants.usda.gov/>

MACHINERY IDENTIFICATION

Resources for machinery identification can be obtained online from various equipment manufacturers. A visit to an implement dealer in your area would be recommended. Farm toys can also be used.

GRAIN GRADING

Teaching and CDE samples can be obtained by contacting Northeast Indiana Grain Inspection Service, Mr. Neil Reynolds at 260-341-7497 or neigi@eawifi.com.

- <https://www.gipsa.usda.gov/fgis/usstandards.aspx>

HAY EVALUATION

- <http://pods.dasnr.okstate.edu/docushare/dsweb/Get/Document-2556/PSS-2588web2015.pdf>

VEGETABLE / SEED EVALUATION AND PLACING

- <http://www.wyomingextension.org/agpubs/pubs/70501G.pdf>

DISEASE / DISORDER

- http://plant-disease.ippc.orst.edu/image_index.cfm
- <http://plantpathology.tamu.edu/Textlab/index.html>

INSECTS:

- http://pest.ca.uky.edu/EXT/master_gardener/entbasics/mouthparts/mouthparts.shtml

SOILS:

- <http://www.nrcs.usda.gov/wps/portal/nrcs/soilsurvey/soils/survey/state/>

TEAM EVENT

- www.cdms.net.

WRITTEN EXAM:

The best resource for the written exam is old exams available from the National FFA Organization. There is no one resource for the exam.

- <http://ohioline.osu.edu/factsheet/HYG-1133>
- <http://www.extension.iastate.edu/Publications/SR48.html>
- <http://extension.agron.iastate.edu/soybean/topicpage1.html>
- <http://gaps.cornell.edu>



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Weeds List

Weeds marked with * are considered noxious weeds according to the USDA.

ID #	Weed Name	Form	Botanical Name
100	barnyardgrass	plant and seed	Echinochloa crus-galli
101	black nightshade	plant and seed	Solanum nigrum or Solanum ptycanthum
102	broadleaf plantain	plant and seed	Plantago major
103	buckhorn plantain	plant and seed	Plantago lanceolata
104	bull thistle*	plant and seed	Cirsium vulgare
105	Canada thistle*	plant and seed	Cirsium arvense
106	cheat	plant and seed	Bromus secalinus
107	common chickweed	plant and seed	Stellaria media
108	common cocklebur	plant and seed as bur	Xanthium strumarium
109	common lambsquarters	plant and seed	Chenopodium album
110	common mallow	plant and seed	Malva neglecta
111	common milkweed	plant and seed	Asclepias syriaca
112	common purslane	plant and seed	Portulaca oleracea
113	common ragweed *	plant and seed	Ambrosia artemisiifolia
114	common sunflower	plant and seed	Helianthus annuus
115	crabgrass	plant and seed	Digitaria spp.
116	crown vetch	plant and seed	Coronilla varia
117	curly dock *	plant and seed	Rumex crispus
118	dandelion	plant and seed	Taraxacum officinale
119	downy brome	plant	Bromus tectorum L.
120	field bindweed*	plant and seed	Convolvulus arvensis
121	field dodder*	plant and seed	Cuscuta spp.

122	field pennycress	plant and seed	Thlaspi arvense
123	field sandbur	plant and seed	Cenchrus incertus
124	foxtail, giant *	plant and seed	Setaria faberi
125	foxtail, green	plant and seed	Setaria viridis
126	foxtail, yellow	plant and seed	Setaria glauca
127	giant ragweed *	plant and seed	Ambrosia trifida
128	ground cherry	plant and seed	Physalis spp.
129	horsenettle*	plant and seed	Solanum carolinense
130	horseweed* (maretail)	plant only	Conyza canadensis
131	jimsonweed	plant and seed	Datura stramonium
132	johnsongrass*	plant and seed	Sorghum halpense
133	knapweed, Russian *	plant only	Centaurea repens
134	kochia *	plant and seed	Kochia scoparia
135	kudzu *	plant only	Pueraria montana var lobata
136	leafy spurge*	plant and seed	Euphorbia esula
137	morningglory	plant and seed	Ipomoea spp.
138	nightshade, silver	plant and seed	Solanum elaeagnifolium
139	nutsedge*	plant and seed as nutlet	Cyperus spp.
140	prickly lettuce	plant and seed	Lactuca scariola
141	prostrate knotweed	plant and seed	Polygonum aviculare
142	prostrate spurge	plant only	Euphorbia supina
143	puncturevine*	plant and seed	Tribulus terrestris
144	quackgrass*	plant and seed	Agropyron repens
145	redroot pigweed	plant and seed	Amaranthus retroflexus
146	Russian thistle	plant and seed	Salsola pestifer
147	shepardspurse	plant and seed	Capsella bursa-pastoris
148	sicklepod	plant and seed	Senna obtusifolia
149	smartweed	plant and seed	Polygonum spp.
150	sowthistle*	plant and seed	Sonchus spp.

151	tansy mustard	plant and seed	Descurainia pinnata
152	velvetleaf *	plant and seed	Abutilon theophrasti
153	wild carrot *	plant and seed	Daucus carota
154	wild mustard	plant and seed	Brassica kaber
155	wild oats	plant only	Avena sativa
156	wild onion/garlic *	plant and seed	Allium spp.



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Crops List

ID #	Weed Name	Form	Botanical Name
200	Alfalfa	plant or seed	Medicago sativa
201	Barley	plant or seed	Hordeum vulgare
202	Bean (dry)	plant only	Phaseolus vulgaris
203	Bermudagrass	plant or seed	Cynodon dactylon
204	Black bean	seed only	Phaseolus vulgaris
205	Broccoli	plant only	Brassica oleracea var. italica
206	Cabbage	plant only	Brassica oleracea capitata
207	Canola	plant or seed	Brassica napus
208	Cantaloupe	plant or seed	Cucumis melo var. cantalupensis
209	Carrot	root provided	Daucus carota
210	Cauliflower	plant only	Brassica oleracea var. botrytis
211	Chickpea/Garbanzo	seed only	Cicer arietinum
212	Chili pepper	plant or seed	Capsicum annuum
213	Corn	plant only	Zea mays
214	Cotton	plant or seed	Gossypium hirsutum
215	Cranberry	plant only	Vaccinium macrocarpon
216	Cucumber	plant or seed	Cucumis sativus var. sativus
217	Dent corn	seed only	Zea mays
218	Durum wheat	seed only	Triticum turgidum
219	Flax	plant or seed	Linum usitatissimum
220	Hops	plant only	Humulus lupulus
221	Kentucky bluegrass	plant or seed	Poa pratensis

222	Lentil	plant or seed	Lens culinaris
223	Lettuce	plant or seed	Lactuca sativa
224	Lima bean	seed only	Phaseolus lunatus
225	Oats	plant or seed	Avena sativa
226	Onion	plant or seed	Allium cepa
227	Orchardgrass	plant or seed	Dactylis glomerata
228	Peanut	plant or seed	Arachis hypogaea
229	Peas	plant or seed	Pisum Sativum
230	Pinto bean	seed only	Phaseolus vulgaris
231	Popcorn	seed only	Zea mays
232	Potato	plant only	Solanum tuberosum
233	Red bean	seed only	Phaseolus vulgaris
234	Red clover	plant or seed	Trifolium pratense
235	Red wheat	seed only	Triticum aestivum
236	Rice	plant or seed	Oryza sativa
237	Rye	plant or seed	Secale cereale
238	Safflower	plant or seed	Carthamus tinctorius
239	Sorghum	plant or seed	Sorghum bicolor
240	Soybean	plant or seed	Glycine max
241	Spinach	plant or seed	Spinacia oleracea
242	Squash	plant or seed	Curcubita pepo
243	Strawberry	plant only	Fragaria virginiana
244	Sudangrass	plant or seed	Sorghum bicolor
245	Sugar beets	plant or seed	Beta vulgaris
246	Sugarcane	plant only	Saccharum sp.
247	Sunflower	plant or seed	Helianthus annuus
248	Sweet corn	plant only	Zea mays
249	Sweet potato	plant only	Ipomoea batatas
250	Sweetclover	plant or seed	Melilotus albus

251	Tall fescue	plant or seed	Festuca arundinacea
252	Timothy	plant or seed	Phleum pratense
253	Tobacco	plant or seed	Nicotiana tabacum
254	Tomato	plant or seed	Lycopersicon esculentum
255	Watermelon	plant or seed	Citrullus lanatus
256	Wheat	plant only	Triticum aestivum
257	White bean	seed only	Phaseolus vulgaris
258	White clover	plant or seed	Trifolium repens
259	White wheat	seed only	Triticum aestivum



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Machinery List

600. Air compressor/hose
601. Air seeder (tool and air cart together)
602. Anemometer
603. Anhydrous applicator with tank
604. Articulated tractor
605. Auger platform head for combine
606. Back pack sprayer
607. Bale wagon (kick or flat)
608. Baler
609. Bean harvester head
610. Bed mulcher
611. Bed shaper
612. Belt pickup head for combine
613. Broadcast spreader
614. Chemigation unit for irrigation
615. Combine (may be displayed with harvesting head attached)
616. Conveyer/Elevator/Auger
617. Corn head for combine
618. Cotton picker

619. Cotton stripper
620. Cultipacker
621. Disk
622. Disk chisel
623. Draper head for combine or swather
624. Drawn planter
625. Fertilizer density scale (dry fertilizer)
626. Field cultivator
627. Field shovel
628. Forage harvester (maybe displayed with harvesting head attached)
629. Gauge Wheel
630. GPS receiver
631. Grain bin/leg
632. Grain drill (Includes No-Till)
633. Grain dryer
634. Hand hoe
635. Hay merger
636. Hay mower conditioner (disk or reel/drawn, 3pt, or self-propelled)
637. Hay rake (reel or wheel)
638. Hearing protection
639. Hitch pin
640. Hydraulic cylinder/ hose
641. In-line ripper

642. Integral planter
643. Irrigation - Lateral
644. Irrigation - Traveling Gun
645. Irrigation Pivot
646. Liquid manure tank/applicator (includes draglines)
647. Manure sampling kit
648. Manure spreader
649. Module builder
650. Moldboard plow
651. Nurse tank trailer
652. Pea harvester
653. Peanut digger
654. Plastic layer
655. Potato harvester
656. PPE (all equipment)
657. Press wheel
658. Pressure gauge
659. Pressure regulator
660. PTO shaft
661. Rotary hoe
662. Round baler
663. Row crop cultivator
664. Row crop tractor

665. Row Independent Forage Harvester Head (kemper head)
666. Skid steer
667. Soil penetrometer
668. Soil probe
669. Soil sample bag
670. Soil thermometer
671. Specialty tractor (orchard, narrow, low profile, high clearance)
672. Sprayer
673. Sprayer nozzle/nozzle body
674. Square baler (large or small)
675. Strip tiller
676. Sugar beet harvester
677. Swather
678. Sweep net
679. Tensiometer
680. Tissue sample bag
681. Tracked tractor (non articulating)
682. Vegetable transplanter
683. Virtual terminal/monitor/controller
684. V-Ripper
685. Wheel loader



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Insect List Official Guide

	Insect	Economic Impact	Life Cycle	Mouth Parts
1	Alfalfa Weevil	422 - Vegetative Part Destruction	510 - Complete	800 - Chewing
2	aphids	423 - Removal of Plant Fluids	511 - Incomplete	803 - Piercing-Sucking
3	armyworm larva	422 - Vegetative Part Destruction	510 - Complete	070 - Chewing
4	assassin bug	420 -Beneficial	511 - Incomplete	073 - Piercing-Sucking
5	bean leaf beetle	Must put both 421 & 422	510 - Complete	070 - Chewing
6	blister beetle (larvae)	420 -Beneficial	510 - Complete	070 - Chewing
6	blister beetle	422 - Vegetative Part Destruction	510 - Complete	070 - Chewing
7	boll weevil	421 - Fruit/Flower Destruction	510 - Complete	070 - Chewing
8	chinch bug	423 - Removal of Plant Fluids	511 - Incomplete	073 - Piercing-Sucking
9	Colorado potato beetle	422 - Vegetative Part Destruction	510 - Complete	070 - Chewing
10	corn earworm larva	Must put both 421 & 422	510 - Complete	070 - Chewing
11	corn rootworm larva	422 - Vegetative Part Destruction	510 - Complete	070 - Chewing
12	cricket	421 - Fruit/Flower Destruction	511 - Incomplete	070 - Chewing
13	cutworm larva	422 - Vegetative Part Destruction	510 - Complete	070 - Chewing
14	European corn borer larva	Must put both 421 & 422	510 - Complete	070 - Chewing
15	flea beetle	422 - Vegetative Part Destruction	510 - Complete	070 - Chewing
16	grain weevil	421 - Fruit/Flower Destruction	510 - Complete	070 - Chewing
17	grasshopper	422 - Vegetative Part Destruction	511 - Incomplete	070 - Chewing
18	green lacewing	420 -Beneficial	510 - Complete	070 - Chewing
19	honeybee	420 -Beneficial	510 - Complete	071 - Chewing - lapping
20	Japanese beetle	Must put both 421 & 422	510 - Complete	070 - Chewing
21	lady beetle larva	420 -Beneficial	510 - Complete	070 - Chewing
22	leaf skeletonizer	422 - Vegetative Part Destruction	510 - Complete	070 - Chewing

23	leafhopper	423 - Removal of Plant Fluids	511 - Incomplete	073 - Piercing-Sucking
24	lygus	423 - Removal of Plant Fluids	511 - Incomplete	073 - Piercing-Sucking
25	Mexican bean beetle	Must put both 421 & 422	510 - Complete	070 - Chewing
26	pink bollworm larva	421 - Fruit/Flower Destruction	510 - Complete	070 - Chewing
27	salt marsh caterpillar/wooly worm	422 - Vegetative Part Destruction	510 - Complete	070 - Chewing
28	scale	423 - Removal of Plant Fluids	511 - Incomplete	073 - Piercing-Sucking
29	spider mite	422 - Vegetative Part Destruction	511 - Incomplete	072 - rasping-Sucking
30	spittlebug	423 - Removal of Plant Fluids	511 - Incomplete	073 - Piercing-Sucking
31	spotted cucumber/Southern Corn Rootworm beetle	422 - Vegetative Part Destruction	510 - Complete	070 - Chewing
32	stinkbug	423 - Removal of Plant Fluids	511 - Incomplete	073 - Piercing-Sucking
33	tobacco/tomato hornworm larva	Must put both 421 & 422	001 - Complete	070 - Chewing
34	Western corn rootworm beetle	Must put both 421 & 422	001 - Complete	070 - Chewing
35	Western flower thrip	422 - Vegetative Part Destruction	002 - Incomplete	072 - Rasping-sucking
36	white grub	422 - Vegetative Part Destruction	001 - Complete	070 - Chewing
37	whitefly	422 - Vegetative Part Destruction	001 - Complete	072 - Rasping-sucking
38	wireworm	422 - Vegetative Part Destruction	001 - Complete	070 - Chewing



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Agronomic Disorders Practicum Scorecard

NAME _____

CHAPTER _____

		Member Answer	Possible Points	Member Score	Possible Answers
1.	Casual Category:		3		<p>Causal Category</p> <p>Biological Cultural Environmental</p> <p>Agents</p> <p>Bacteria Chemical Compaction Drought Frost damage Fungus Hail Heat Insect Lightning Mechanical Moisture Nematodes Nutritional Pollution Sun scald Virus Wind damage</p> <p>Parts of Plant Displayed</p> <p>Reproductive parts Vegetative parts Vascular Bundles More than one</p>
	Agent:		4		
	Part of Plant Displayed:		3		
2.	Casual Category:		3		
	Agent:		4		
	Part of Plant Displayed:		3		
3.	Casual Category:		3		
	Agent:		4		
	Part of Plant Displayed:		3		
4.	Casual Category:		3		
	Agent:		4		
	Part of Plant Displayed:		3		
5.	Casual Category:		3		
	Agent:		4		
	Part of Plant Displayed:		3		
6.	Casual Category:		3		
	Agent:		4		
	Part of Plant Displayed:		3		
7.	Casual Category:		3		
	Agent:		4		
	Part of Plant Displayed:		3		
8.	Casual Category:		3		

	Agent:		4		
	Part of Plant Displayed:		3		
9.	Casual Category:		3		
	Agent:		4		
	Part of Plant Displayed:		3		
10.	Casual Category:		3		
	Agent:		4		
	Part of Plant Displayed:		3		
TOTAL SCORE:			100		



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Insect Identification Rubric

NAME _____

CHAPTER _____

		Member Answer	Possible Points	Member Score	Possible Answers
1.	Identification:		4		Identificaton 10. alfalfa weevil 11. aphids 12. armyworm larva 13. assassin bug 14. bean leaf beetle 15. blister beetle 16. boll weevil 17. chinch bug 18. Colorado potato beetle 19. corn ear worm larva 20. corn rootworm larva 21. cricket 22. cutworm larva 23. European corn borer larva 24. flea beetle 25. grain weevil 26. grasshopper 27. green lacewing 28. honeybee 29. Japanese beetle 30. lady beetle larva 31. leaf skeletonizer 32. leafhopper 33. lygus 34. Mexican bean beetle 35. pink bollworm larva 36. salt marsh caterpillar/wooly worm 37. scale 38. spider mite 39. spittlebug 40. spotted cucumber beetle/Southern corn rootworm beetle 41. stinkbug 42. tobacco/tomato hornworm larva 43. Western corn rootworm beetle 44. western flower thrip 45. white grub 46. whitefly 47. wireworm Economic Impact
	Economic Impact:		2		
	Life Cycle:		2		
	Mouth Part:		2		
2.	Identification:		4		
	Economic Impact:		2		
	Life Cycle:		2		
	Mouth Part:		2		
3.	Identification:		4		
	Economic Impact:		2		
	Life Cycle:		2		
	Mouth Part:		2		
4.	Identification:		4		
	Economic Impact:		2		
	Life Cycle:		2		
	Mouth Part:		2		
5.	Identification:		4		
	Economic Impact:		2		
	Life Cycle:		2		
	Mouth Part:		2		
6.	Identification:		4		
	Economic Impact:		2		
	Life Cycle:		2		
	Mouth Part:		2		

7.	Identification:		4		None or predatory: NP Fruit/Flower destruction: F Vegetative Part destruction: V Removal of plant fluids: R Life Cycle Complete: C Incomplete: I None: N Mouth Part Chewing: CH Chewing-lapping: CL Rasping-sucking: RS Piercing-sucking: PS Sponging: SP Siphoning: SI
	Economic Impact:		2		
	Life Cycle:		2		
	Mouth Part:		2		
8.	Identification:		4		
	Economic Impact		2		
	Life Cycle:		2		
	Mouth Part:		2		
9.	Identification:		4		
	Economic Impact:		2		
	Life Cycle:		2		
	Mouth Part:		2		
10	Identification:		4		
	Economic Impact:		2		
	Life Cycle:		2		
	Mouth Part:		2		
TOTAL SCORE:			100		



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Crop Placing Written Reasons Scorecard

25 points

NAME _____ CHAPTER _____

Placing		Total Points
TOTAL POINTS		

JUDGE'S NAME

JUDGE'S SIGNATURE

DATE



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Agriculture, Food and Natural Resources Content Standards

Performance Measurement Levels	Event Activities Addressing Measurements	Related Academic Standards
ABS.01.01. Performance Indicator: Apply micro- and macroeconomic principles to plan and manage inputs and outputs in an AFNR business.		CCSS.ELA-Literacy.L.9-10.6 CCSS.ELA-LITERACY.L.11-12.6 CCSS.ELA-LITERACY.RST.9-10.4 CCSS.ELA-LITERACY.RST.11-12.4 CCSS.MATH.CONTENT.HSS.ID.C.7 CCSS.MATH.CONTENT.HSS.IC.B.6 Financial Investing: Benchmarks: Grade 12, Statement 9
ABS.01.01.01.c. Create strategies to maximize the efficiency of AFNR business inputs and outputs using microeconomic principles.	Team activity	
ABS.01.01.02.c. Analyze the impact of the current macroeconomic environment on decisions related to AFNR businesses.	Team activity	
ABS.01.03. Performance Indicator: Devise and apply management skills to organize and run an AFNR business in an efficient, legal and ethical manner.		CCSS.ELA-LITERACY.SL.9-10.6 CCSS.ELA-LITERACY.SL.11-12.6 CCSS.ELA-LITERACY.L.9-10.6 CCSS.ELA-LITERACY.L.11-12.6 CCSS.ELA-LITERACY.RST.9-10.4 CCSS.ELA-LITERACY.RST.11-12.4
ABS.01.03.01.c. Devise strategies to improve the operation of AFNR businesses using management skills.	Team activity	
ABS.01.03.02.c. Devise management or operational strategies to address and adhere to local, state, federal, international and industry regulations.	Team activity	
ABS.03. Performance Element: Manage cash budgets, credit budgets and credit for an AFNR business using generally accepted accounting principles.		

Performance Measurement Levels	Event Activities Addressing Measurements	Related Academic Standards
ABS.03.01.01.c. Develop cash budgets for AFNR businesses.	Team activity	CCSS.ELA-LITERACY.RH.9-10.7 CCSS.ELA-LITERACY.RH.11-12.7 CCSS.ELA-LITERACY.L.9-10.6 CCSS.ELA-LITERACY.L.11-12.6 CCSS.ELA-LITERACY.RST.9-10.4 CCSS.ELA-LITERACY.RST.11-12.4 CCSS.MATH.CONTENT.HSS.IC.B.6
ABS.04.01. Performance Indicator: Analyze characteristics and planning requirements associated with developing business plans for different types of AFNR businesses.		
ABS.04.01.01.c. Demonstrate the application of entrepreneurial skills to conceptualize an AFNR business (e.g., idea generation, opportunity analysis, risk assessment, etc.).	Team activity	CCSS.ELA-LITERACY.L.9-10.6 CCSS.ELA-LITERACY.L.11-12.6 CCSS.ELA-LITERACY.RST.9-10.4 CCSS.ELA-LITERACY.RST.11-12.4 CCSS.ELA-LITERACY.W.9-10.2 CCSS.ELA-LITERACY.W.11-12.2 CCSS.ELA-LITERACY.W.9-10.9 CCSS.ELA-LITERACY.W.11-12.9
ABS.04.01.03.c. Prepare business plans for an AFNR business.	Team activity	
ABS.04.02. Performance Indicator: Develop production and operational plans for an AFNR business.		
ABS.04.02.01.b. Compare and contrast the strengths and weaknesses of operational plans from different AFNR businesses to determine best practices.	Team activity	AFNR Career Cluster – Agribusiness Systems Pathway, Statement 3 CCSS.ELA-LITERACY.ELA-W.9-10.2 CCSS.ELA-LITERACY.W.11-12.2 CCSS.ELA-LITERACY.L.9-10.6 CCSS.ELA-LITERACY.L.11-12.6 CCSS.ELA-LITERACY.RST.9-10.4 CCSS.ELA-LITERACY.RST.11-12.4
ABS.05.01. Performance Indicator: Analyze the role of markets, trade, competition and price in relation to an AFNR business sales and marketing plans.		
ABS.05.01.01.c. Evaluate and predict future trends for a specific AFNR product as related to markets, trade and price (e.g., corn, oil, wheat, etc.).	Grain grading	AFNR Career Cluster, Statement 7 AFNR Career Cluster – Agribusiness Systems Pathway, Statement 1 Financial Investing: Benchmarks: Grade 12, Statement 13
ABS.05.02. Performance Indicator: Assess and apply sales principles and skills to accomplish AFNR business objectives.		

Performance Measurement Levels	Event Activities Addressing Measurements	Related Academic Standards
<p>ABS.05.02.01.c. Analyze the sales process of AFNR businesses and create methods to suggest improvements.</p>	<p>Team activity</p>	<p>CCSS.ELA-LITERACY.SL.9-10.6 CCSS.ELA-LITERACY.SL.11-12.6 CCSS.ELA-LITERACY.RH.9-10.7 CCSS.ELA-LITERACY.RH.11-12.7 Buying Goods & Services: Benchmarks: Grade 12, Statements 1 Buying Goods & Services: Benchmarks: Grade 12, Statements 3 Buying Goods & Services: Benchmarks: Grade 12, Statements 4 Buying Goods & Services: Benchmarks: Grade 12, Statements 5</p>
<p>ABS.05.03. Performance Indicator: Assess marketing principles and develop marketing plans to accomplish AFNR business objectives.</p>		
<p>ABS.05.03.01.c. Deconstruct and analyze current AFNR marketing plans to determine the effectiveness of implementation of marketing principles and alternative marketing strategies.</p>	<p>Team activity</p>	<p>AFNR Career Cluster – Agribusiness Systems Pathway, Statement 4 CCSS.ELA-LITERACY.L.9-10.6 CCSS.ELA-LITERACY.L.11-12.6 CCSS.ELA-LITERACY.RST.9-10.4 CCSS.ELA-LITERACY.RST.11-12.4 CCSS.ELA-LITERACY.W.9-10.2 CCSS.ELA-LITERACY.W.11-12.2 CCSS.ELA-LITERACY.RH.9-10.7 CCSS.ELA-LITERACY.RH.11-12.7 CCSS.ELA-LITERACY.SL.9-10.6 CCSS.ELA-LITERACY.SL.11-12.6 Buying Goods & Services: Benchmarks: Grade 12, Statements 1 Buying Goods & Services: Benchmarks: Grade 12, Statements 3 Buying Goods & Services: Benchmarks: Grade 12, Statements 4 Buying Goods & Services: Benchmarks: Grade 12, Statements 7</p>
<p>CS.01.01. Performance Indicator: Examine issues and trends that impact AFNR systems on local, state, national and global levels.</p>		
<p>CS.01.01.01.c. Evaluate and explain AFNR issues and their impacts to audiences with limited AFNR knowledge.</p>	<p>Issues interview</p>	
<p>CS.01.01.02.c. Evaluate emerging trends and the opportunities they may create within the AFNR systems.</p>	<p>Issues interview</p>	

Performance Measurement Levels	Event Activities Addressing Measurements	Related Academic Standards
CS.01.02. Performance Indicator: Examine technologies and analyze their impact on AFNR systems.		
CS.01.02.01.c. Solve problems in AFNR workplaces or scenarios using technology	Grain grading	
CS.01.02.02.c. Evaluate the importance of technology use and how it impacts AFNR systems.	Grain grading	
CS.01.03. Performance Indicator: Identify public policies and their impact on AFNR systems.		
CS.7.02.01.c. Evaluate a public policy within AFNR systems and defend or challenge it.	Issues interview	
CS.7.02.02.c. Create a plan for implementing a new public policy that will positively impact AFNR systems.	Issues interview	
CS.02.01. Performance Indicator: Research geographic and economic data related to AFNR systems.		
CS.02.01.01.c. Evaluate geographic data and select necessary data sets to solve problems within AFNR systems.	Soils	
CS.02.02. Performance Indicator: Examine the components of the AFNR systems and their impact on the local, state, national and global society and economy		
CS.02.02.01.c. Devise a strategy for explaining components of AFNR systems to audiences with limited knowledge.	Issues interview	
CS.02.02.02.c. Evaluate how society traditions, customs or policies have resulted from practices with AFNR systems.	Issues interview	
CS.02.02.03.c. Evaluate how positive or negative changes in the local, state, national or global economy impacts AFNR systems.	Issues interview	
CS.03.01. Performance Indicator: Identify required regulations to maintain and improve safety, health and environmental management systems.		

Performance Measurement Levels	Event Activities Addressing Measurements	Related Academic Standards
CS.03.01.01.c. Evaluate how AFNR organizations/businesses promote improved health, safety and environmental management.	Exam	
CS.03.01.02.c. Construct and implement methods to evaluate compliance with required safety, health and environmental management regulations.	Exam	
CS.03.04. Performance Indicator: Use appropriate protective equipment and demonstrate safe and proper use of AFNR tools and equipment.		
C3.06.04.01.c. Design plans to ensure the use of appropriate protective equipment when using various AFNR tools and equipment.	Exam	
C3.06.04.02.c. Evaluate and select appropriate tools and equipment to complete AFNR tasks.	Exam; machinery identification	
CS.04.01. Performance Indicator: Identify and implement practices to steward natural resources in different AFNR systems.		
CS.04.01.02.c. Evaluate sustainability policies and plans and prepare summary of potential improvements for AFNR businesses or organizations.	Issues interview	
CS.04.02. Performance Indicator: Assess the natural resource related trends, technologies and policies that impact AFNR systems.		
CS.04.02.01.c. Defend or challenge natural resources trends and technologies based upon an assessment of their impact on AFNR systems.	Issues interview	
CS.06.01. Performance Indicator: Explain foundational cycles and systems of AFNR.		
CS.06.01.02.c. Evaluate AFNR systems and predict how the systems may change or adapt in the future of food, fiber and fuel production based on current trends and data.	Issues interview	
CS.06.02. Performance Indicator: Explain the connection and relationships between different AFNR systems on a national and global level.		

Performance Measurement Levels	Event Activities Addressing Measurements	Related Academic Standards
CS.06.02.01.c. Evaluate how AFNR systems impact each other on a national and global level.	Issues interview	
CS.06.02.02.c. Evaluate how changes in one AFNR system can benefit cost components of other systems on a national and global level.	Issues interview	
FPP.01.02. Performance Indicator: Apply food safety and sanitation procedures in the handling and processing of food products to ensure food quality.		
FPP.01.02.01.c. Identify sources of contamination in food products and/or processing facilities and develop ways to eliminate contamination.	Grain grading; Exam	
FPP.01.03. Performance Indicator: Apply food safety procedures when storing food products to ensure food quality.		
FPP.01.03.01.a. Identify and summarize purposes of food storage procedures (e.g., first in/first out, temperature regulation, monitoring, etc.).	Grain grading	
FPP.03.01. Performance Indicator: Implement selection, evaluation and inspection techniques to ensure safe and quality food products.		
FPP.03.01.01.c. Outline procedures to assign quality and yield grades to food products according to industry standards.	Grain grading	AFNR Career Cluster – Food Products and Processing Systems Pathway, Statement 1 AFNR Career Cluster – Food Products and Processing Systems Pathway, Statement 2 Buying Goods and Services, Benchmarks: Grade 12, Statement 7
FPP.03.01.02.b. Assemble procedures to perform quality-control inspections of raw food products for processing.	Grain grading	
FPP.03.02. Performance Indicator: Design and apply techniques of food processing, preservation, packaging and presentation for distribution and consumption of food products.		
FPP.03.02.01.a. Identify and explain English and metric measurements used in the food products and processing industry.	Grain grading	AFNR Career Cluster – Food Products and Processing Systems Pathway, Statement 3
FPP.04.01. Performance Indicator: Examine the scope of the food industry by evaluating local and global policies, trends and customs for food production.		

Performance Measurement Levels	Event Activities Addressing Measurements	Related Academic Standards
FPP.04.01.01.c. Articulate and defend a personal point of view on policies and legislation that affect the food products and processing system in the U.S. or around the world.	Issues interview	HS-ETS1-3 .
NRS.01.01. Performance Indicator: Apply methods of classification to examine natural resource availability and ecosystem function in a particular region.		
NRS.01.01.01.c. Devise strategies for the preservation of natural resources based on their classification.	Soils; team activity	AFNR Career Cluster, Statement 1 AFNR Career Cluster, Statement 2 AFNR Career Cluster - Natural Resources Systems Pathway, Statement 3 STEM Career Cluster, Statement 1 CCSS.ELA-LITERACY.RST.11-12.1 CCSS.ELA-LITERACY.RST.11-12.8 CCSS.ELA-LITERACY.WHST.9-10.2 CCSS.ELA-LITERACY.WHST.11-12.2 CCSS.ELA-LITERACY.WHST.9-10.9 CCSS.ELA-LITERACY.WHST.11-12.9
NRS.01.01.02.c. Conduct analyses of ecosystems and document the interactions of living species and non-living resources.	Exam	AFNR Career Cluster, Statement 1 AFNR Career Cluster, Statement 2 AFNR Career Cluster - Natural Resources Systems Pathway, Statement 3 STEM Career Cluster, Statement 1 CCSS.ELA-LITERACY.RST.11-12.1 CCSS.ELA-LITERACY.RST.11-12.8 CCSS.ELA-LITERACY.WHST.9-10.2 CCSS.ELA-LITERACY.WHST.11-12.2 CCSS.ELA-LITERACY.WHST.9-10.9 CCSS.ELA-LITERACY.WHST.11-12.9
NRS.01.02. Performance Indicator: Classify different types of natural resources in order to enable protection, conservation, enhancement and management in a particular geographical region.		

Performance Measurement Levels	Event Activities Addressing Measurements	Related Academic Standards
NRS.01.02.05.c. Evaluate the non-living resources present in an area to determine the best practices for improving, enhancing and protecting an ecosystem.	Soils	AFNR Career Cluster - Natural Resources Systems Pathway, Statement 3 CCSS.ELA-LITERACY.RST.11-12.1 CCSS.ELA-LITERACY.RST.11-12.7 CCSS.ELA-LITERACY.RST.11-12.8 CCSS.ELA-LITERACY.WHST.9-10.2 CCSS.ELA-LITERACY.WHST.11-12.2 CCSS.ELA-LITERACY.WHST.9-10.7 CCSS.ELA-LITERACY.WHST.11-12.7 CCSS.ELA-LITERACY.WHST.9-10.9 CCSS.ELA-LITERACY.WHST.11-12.9 CCSS.MATH.CONTENT.HSN-Q.A.1 CCSS.MATH.CONTENT.HSN-Q.A.2 HS-ESS3-2
NRS.01.05. Performance Indicator: Apply ecological concepts and principles to terrestrial natural resource systems.		
NRS.01.05.04.c. Devise a soil management plan to minimize erosion and maximize biodiversity, plant productivity, and the formation of topsoil.	Soils	AFNR Career Cluster, Statement 1 AFNR Career Cluster – Animal Systems Pathway, Statement 3 AFNR Career Cluster – Natural Resources Systems Pathway, Statement 3 CCSS.ELA-LITERACY.RST.11-12.1 CCSS.ELA-LITERACY.RST.11-12.7 CCSS.ELA-LITERACY.RST.11-12.8 CCSS.MATH.CONTENT.HSS-ID.A.1 CCSS.MATH.CONTENT.HSS-IC.A.1 CCSS.MATH.CONTENT.HSS-IC.B.6 HS-ESS3-4 HS-ESS3-2
NRS.04.02. Performance Indicator: Diagnose plant and wildlife diseases and follow protocols to prevent their spread.		
NRS.04.02.01.b. Analyze a plant disease based on its symptoms, identify if the disease needs to be reported to authorities and determine which authorities it should be reported to.	Grain grading	CCSS.ELA-LITERACY.RST.11-12.7 CCSS.ELA-LITERACY.RST.11-12.8 CCSS.ELA-LITERACY.WHST.11-12.2 CCSS.ELA-LITERACY.WHST.11-12.7 CCSS.ELA-LITERACY.WHST.11-12.8 CCSS.ELA-LITERACY.WHST.11-12.9 CCSS.MATH.CONTENT.HSN-Q.A.1 CCSS.MATH.CONTENT.HSN-Q.A.2 CCSS.MATH.CONTENT.HSN-Q.A.3 HS-LS2-7

Performance Measurement Levels	Event Activities Addressing Measurements	Related Academic Standards
PS.01.01. Performance Indicator: Determine the influence of environmental factors on plant growth.		
PS.01.01.01.c. Analyze plant responses to varied light color, intensity and duration and recommend modifications to light for desired plant growth.	Exam	
PS.01.01.03.c. Analyze plant responses to water conditions and recommend modifications to water for desired plant growth.	Commodity evaluation	
PS.01.02. Performance Indicator: Prepare and manage growing media for use in plant systems.		
PS.01.02.01.c. Formulate and prepare growing media for specific plants or crops.	Exam	
PS.01.02.02.c. Determine the hydraulic conductivity for soil and how the results influence irrigation practices.	Exam; team activity; pest management; soils	
PS.01.03. Performance Indicator: Develop and implement a fertilization plan for specific plants or crops.		
PS.01.03.01.a. Identify the essential nutrients for plant growth and development and their major functions (e.g., nitrogen, phosphorous, potassium, etc.).	Team activity; Exam; pest management	CCSS.MATH.CONTENT.HSN.Q.A.2 CCSS.MATH.CONTENT.HSN.Q.A.3
PS.01.03.01.c. Monitor plants for signs of nutrient deficiencies and prepare a scouting report to correct elements negatively affecting plant growth in a field or greenhouse.	Pest management	CCSS.MATH.CONTENT.HSN.Q.A.2 CCSS.MATH.CONTENT.HSN.Q.A.3
PS.01.03.02.c. Adjust the pH of growing media for specific plants or crops.	Exam; team activity	CCSS.MATH.CONTENT.HSN.Q.A.2 CCSS.MATH.CONTENT.HSN.Q.A.3
PS.01.03.03.c. Prescribe fertilizer applications based on the results of a laboratory analysis of soil and plant tissue samples.	Exam; team activity	CCSS.MATH.CONTENT.HSN.Q.A.2 CCSS.MATH.CONTENT.HSN.Q.A.3
PS.01.03.05.c. Devise a plan for soil management for a selected production method.	Exam; team activity; soils	CCSS.MATH.CONTENT.HSN.Q.A.2 CCSS.MATH.CONTENT.HSN.Q.A.3

Performance Measurement Levels	Event Activities Addressing Measurements	Related Academic Standards
PS.01.03.06.c. Devise a plan to meet plant nutrient needs based on environmental factors present.	Team activity	CCSS.MATH.CONTENT.HSN.Q.A.2 CCSS.MATH.CONTENT.HSN.Q.A.3
PS.02.02. Performance Indicator: Apply knowledge of plant anatomy and the functions of plant structures to activities associated with plant systems.		
PS.02.02.01.c. Apply the knowledge of cell differentiation and the functions of the major types of cells to plant systems.	Exam	HS-LS1-4
PS.02.02.02.c. Correlate the active and passive transport of minerals into and through the root system to plant nutrition.	Exam	HS-LS1-5
PS.02.02.03.c. Evaluate the function of the xylem, phloem and cambium tissues and the impact on plant systems.	Exam	HS-LS1-5
PS.02.02.04.c. Devise a plan for plant management practices that takes into account leaf structure and functions.	Team activity	HS-LS1-5
PS.02.02.05.c. Evaluate flower structures and analyze the impact of plant structure on plant breeding, production and use.	Exam	HS-LS1-4 HS-LS1-5
PS.02.02.06.c. Evaluate the impact of different seed and fruit structures to plant culture and use.	Exam	HS-LS1-4 HS-LS1-5
PS.01.03. Performance Indicator: Apply knowledge of plant physiology and energy conversion to plant systems.		
PS.02.03.01.c. Evaluate the impact of photosynthesis and the factors that affect it on plant management, culture and production problems.	Exam	HS-LS1-5
PS.02.03.02.c. Evaluate the impact of plant respiration on plant growth, crop management and post-harvest handling decisions.	Exam	HS-LS1-5

Performance Measurement Levels	Event Activities Addressing Measurements	Related Academic Standards
PS.02.03.05.c. Devise plans for plant management that applies knowledge of transpiration, translocation and assimilation on plant growth.	Exam	HS-LS1-4 HS-LS1-5
PS.03. Performance Element: Propagate, culture and harvest plants and plant products based on current industry standards.		
PS.03.01.01.c. Select and defend the use of pollination methods and practices used to maximize crop pollination.	Exam	
PS.03.01.02.a. Demonstrate sowing techniques for providing favorable conditions to meet the factors of seed germination.	Machinery identification	
PS.03.01.03.a. Summarize optimal conditions for asexual propagation and demonstrate techniques used to propagate plants by cuttings, division, separation, layering, budding and grafting.	Exam	
PS.03.01.04.a. Define micropropagation, discuss advantages associated with the practice and summarize the main stages of the process.	Exam	
PS.03.01.05.b. Compare and contrast the potential risks and advantages associated with genetically modified plants.	Issues interview	
PS.03.02. Performance Indicator: Develop and implement a management plan for plant production.		
PS.03.02.01.b. Inspect propagation material for evidence of pests or disease.	Pest management	CCSS.ELA-Literacy.RI.9-10.1 CCSS.ELA-Literacy.RI.9-10.8 CCSS.ELA-Literacy.RST.9-10.3 CCSS.ELA-Literacy.WHST.9-10.2 CCSS.ELA-Literacy.WHST.9-10.4 CCSS.ELA-Literacy.WHST.9-10.9
PS.03.02.02.b. Prepare soil and growing media for planting with the addition of amendments.	Soils	

Performance Measurement Levels	Event Activities Addressing Measurements	Related Academic Standards
PS.03.02.03.a. Determine seeding rate need for specified plant population or desired quantity of finished plants.	Team activity	
PS.03.02.04.a. Observe and record environmental conditions during the germination, growth and development of a crop.	Exam	
PS.03.02.04.c. Prepare and implement a plant production schedule based on predicted environmental conditions and desired market target (e.g., having plants ready to market on a specific day such as Mother’s Day, organic production, low maintenance landscape plants, etc.).	Team activity	
PS.03.02.05.b. Demonstrate proper techniques to control and manage plant growth through mechanical, cultural or chemical means.	Exam	
PS.03.03. Performance Indicator: Develop and implement a plan for integrated pest management for plant production.		
PS.03.03.01.a. Identify and categorize plant pests, diseases and disorders.	Pest management and identification	
PS.03.03.01.b. Identify and analyze major local weeds, insect pests and infectious and noninfectious plant diseases.	Pest management and identification	
PS.03.03.01.c. Devise solutions for plant pests, diseases and disorders.	Team activity and pest management	
PS.03.03.02.b. Predict pest and disease problems based on environmental conditions and life cycles.	Pest management; exam and team activity	
PS.03.03.03.c. Employ pest management strategies to manage pest populations, assess the effectiveness of the plan and adjust the plan as needed.	Team activity; pest management and exam	

Performance Measurement Levels	Event Activities Addressing Measurements	Related Academic Standards
PS.03.03.04.b. Examine and apply procedures for the safe handling, use and storage of pesticides including personal protective equipment and reentry interval.	Exam	
PS.03.04. Performance Indicator: Apply principles and practices of sustainable agriculture to plant production.		
PS.03.04.01.c. Research, prepare and defend plans for a plant systems enterprise that aligns with USDA sustainable practices criteria.	Issues interview	AFNR Career Cluster, Statement 2 STEM Career Cluster, Statement 1 STEM Career Cluster, Statement 4 HS-ESS3-2
PS.03.04.02.c. Select and defend the use of nationally/internationally grown or locally/regionally grown for a production operation system.	Issues interview	AFNR Career Cluster, Statement 2 STEM Career Cluster, Statement 1 STEM Career Cluster, Statement 4 HS-ESS3-2
PS.03.05. Performance Indicator: Harvest, handle and store crops according to current industry standards.		
PS.03.05.01.c. Analyze the processed used by mechanical harvesting equipment.	Machinery identification	CCSS.ELA-Literacy.RST.9-10.3 CCSS.ELA-Literacy.RST.9-10.4 CCSS.ELA-Literacy.WHST.9-10.2a-
PS.03.05.02.b. Evaluate crop yield and loss data and make recommendations to reduce crop loss.	Team activity	CCSS.ELA-Literacy.RST.9-10.3 CCSS.ELA-Literacy.RST.9-10.4 CCSS.ELA-Literacy.WHST.9-10.2a-
PS.03.05.03.c. Research laws and apply regulations to ensure the production of plants and plant products that are safe for distribution and use.	Pest management and exam	CCSS.ELA-Literacy.RST.9-10.3 CCSS.ELA-Literacy.RST.9-10.4 CCSS.ELA-Literacy.WHST.9-10.2a-
PS.03.05.05.b. Demonstrate techniques for grading, handling and packaging plants and plant products for distribution.	Grain grading	CCSS.ELA-Literacy.RST.9-10.3 CCSS.ELA-Literacy.RST.9-10.4 CCSS.ELA-Literacy.WHST.9-10.2a-
PS.03.05.05.c. Evaluate techniques for grading, handling and packaging plants and plant products.	Grain grading and commodity evaluation	CCSS.ELA-Literacy.RST.9-10.3 CCSS.ELA-Literacy.RST.9-10.4 CCSS.ELA-Literacy.WHST.9-10.2a-
CRP.01.01. Performance Indicator: Model personal responsibility in the workplace and community.		

Performance Measurement Levels	Event Activities Addressing Measurements	Related Academic Standards
CRP.01.01.02.c. Model personal responsibility in workplace and community situations.	Team activity	
CRP.01.02 Performance Indicator: Evaluate and consider the near-term and long-term impacts of personal and professional decisions on employers and community before taking action.		
CRP.01.02.01.c. Make and defend personal decisions after analyzing their near- and long-term impacts on self and others.	Team activity	
CRP.01.02.02.c. Make and defend professional decisions after evaluating their near- and long-term impacts on employers and community.	Team activity	
CRP.01.02.02.c. Make and defend professional decisions after evaluating their near- and long-term impacts on employers and community.	Team activity	
CRP.02.01. Performance Indicator: Use strategic thinking to connect and apply academic learning, knowledge and skills to solve problems in the workplace and community.		
CRP.02.01.02.c. Apply academic knowledge and skills to solve problems in the community and reflect upon results achieved.	Issues interview	
CRP.02.02. Performance Indicator: Use strategic thinking to connect and apply technical concepts to solve problems in the workplace and community.		
CRP.02.02.01.c. Apply technical concepts to solve problems in the workplace and reflect upon the results achieved.	Team activity; commodity evaluation and pest management	
CRP.04.01. Performance Indicator: Speak using strategies that ensure clarity, logic, purpose and professionalism in formal and informal settings.		
CRP.04.01.02.b. Apply strategies for speaking with clarity, logic, purpose and professionalism in a variety of situations in formal and informal settings.	Issues interview; team activity	
CRP.04.02. Performance Indicator: Produce clear, reasoned and coherent written communication in formal and informal settings.		

Performance Measurement Levels	Event Activities Addressing Measurements	Related Academic Standards
CRP.04.02.02.c. Compose clear and coherent written documents (e.g., agendas, audio-visuals, drafts, forms, etc.) for formal and informal settings.	Team activity	
CRP.04.03. Performance Indicator: Model active listening strategies when interacting with others in formal and informal settings.		
CRP.04.03.01.b. Apply active listening strategies (e.g., be attentive, observe non-verbal cues, ask clarifying questions, etc.).	Team activity; issues interview	
CRP.07.01. Performance Indicator: Select and implement reliable research processes and methods to generate data for decision-making in the workplace and community.		
CRP.07.01.01.b. Analyze how different research methods are used to generate data in a variety of situations.	Team activity and soils	
CRP.07.02. Performance Indicator: Evaluate the validity of sources and data used when considering the adoption of new technologies, practices and ideas in the workplace and community.		
CRP.07.02.01.c. Propose valid and reliable data sources to use when considering the adoption of new technologies, practices and ideas.	Issues interview	
CRP.07.02.02.c. Create and defend proposals for new technologies, practices and ideas using valid and reliable data sources.	Issues interview	
CRP.08.01. Performance Indicator: Apply reason and logic to evaluate workplace and community situations from multiple perspectives.		
CRP.08.01.01.b. Apply steps for critical thinking to a variety of workplace and community situations.	Team activity	
CRP.08.01.02.b. Assess solutions to workplace and community problems for evidence of reason, logic and consideration of multiple perspectives.	Team activity	
CRP.08.02. Performance Indicator: Investigate, prioritize and select solutions to solve problems in the workplace and community.		
CRP.08.02.02.c. Evaluate and select solutions with greatest potential for success to solve workplace and community problems.	Team activity and pest management	

Performance Measurement Levels	Event Activities Addressing Measurements	Related Academic Standards
CRP.11.01. Performance Indicator: Research, select and use new technologies, tools and applications to maximize productivity in the workplace and community.		
CRP.11.01.01.b. Analyze advantages and disadvantages of new technologies, tools and applications to maximize productivity in the workplace and community.	Team activity and issues interview	
CRP.11.01.01.c. Construct effective communications to explain the features, benefits and risks of new technologies, tools and applications in the workplace and community	Issues interview	
CRP.11.01.02.b. Select, apply and use new technologies, tools and applications in workplace and community situations to maximize productivity.	Team activity, exam, and pest management	