



Agronomy

Purpose

The purpose of the Tennessee 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 encourages students to pursue careers in agronomy.

Objectives

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

- Demonstrate knowledge and skills used in agronomic sciences.
- Explore career opportunities, skills and proficiencies in the agronomy industry.
- Determine the ability to identify agronomic:
 - Crops
 - Weeds
 - Seeds
 - Insects
 - Diseases
 - Plant nutrient deficiencies
 - Plant disorders
- Demonstrate understanding of sustainable agriculture and environmental stewardship through the use of integrated pest management and best management practices.

Event Rules

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

Event Format

Materials students must provide include the following:

- Clean, free-of-notes clipboard.
- Two sharpened No. 2 pencils.
- Calculator — Should be battery operated, non-programmable and non-scientific (basic five function only). No other calculators can be used during the event.

INDIVIDUAL PRACTICUMS

General Knowledge Examination (240 points)

Fifty multiple-choice questions will be given to each participant. These 50 questions will be pulled from a test bank updated annually on tnffa.org. These categories are pest management, nutrient management, crop management, and soil and water quality.

Identification (200 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:

- Analyze web soil survey data and answer questions related to
 - Soil drainage (e.g., poor, moderate, well) and the impact of these classifications.
 - Topographic position (e.g., summit, slope, depression).
 - Identification of USDA land capability classes and answer problem-solving questions related to various classes.
 - Using soil survey to locate specific sites, use of suggested soil spots and questions related to the soil survey map.
 - Interpretation of graphs and tables of data based on soil parameters.

Pest management (200 points)

This portion of the event is designed for the student to accurately diagnose diseases and disorders that could occur in different crops by first narrowing down the list of potential causes by visually reviewing the symptoms as they are seen in the available photos and/or samples.

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, economic impact and mouth part. Refer to the [Insect Identification Practicum Scorecard](#) for additional details.

Event Scoring

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

Activities	Individual Points	Team Points
Written exam	50	200
Identification	200	800
Soils	100	400
Pest management	200	800
TOTAL POINTS POSSIBLE		
	550	2,200

Tiebreakers

If ties occur for awards, the following components will be used to determine the placings:

Team

1. Team identification
2. Team pest management

Individual

1. Plant and seed identification
2. soils
3. written exam

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. Please note that universities frequently update or change their web servers which can invalidate the listed website.

Past CDE materials, an example of the 2024 team activity and other resources are available in the Resources folder [here](#) on [FFA.org](https://www.ffa.org).

Plant Identification

- Flashcards for both seeds and plants are available through Wards Natural Science Establishment <https://wardsci.com/store/>
- 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.HTML>
- 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/java/>
 - Agriculture/Pests-and-Diseases/Weeds/Virginia-Tech-Weed-Identification-Guide.
<https://weedid.cals.vt.edu/>
 - http://www.ipm.ucanr.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/> At the site, enter the common name or scientific name to find the seed.
- <http://plants.usda.gov/java/>
Disease/Disorder
- <http://plantdiseasehandbook.tamu.edu>
Insects
- <http://www2.ca.uky.edu/agcomm/pubs/ENT/ENT68/ENT68.pdf>

Soils

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

Written Exam

There is no one resource for the exam. The Agronomy CDE has adopted these 4 categories from the performance objectives of the International Certified Crop Advisor (ICCA) exam. You may access these at American Society of Agronomy, Inc.,
<https://www.certifiedcropadviser.org/files/certifiedcropadviser/international-performance-objectives.pdf>.

Certified Crop Advisor (CCA) Training Resources, a resource guide for validated study materials for the CCA international exam and for the National FFA Agronomy CDE.
<https://ffa.box.com/s/llrt6zgvuunmulkq6m6zkbaft9576pb4>

- <http://ohioline.osu.edu/factsheet/HYG-1133>
- <http://www.extension.iastate.edu/Publications/SR48.html>
- <https://store.extension.iastate.edu> In Search Box, type "Soybean."
- <https://gaps.cornell.edu>

Weeds List

Conforming with the Weed Science Society of America's standardized name list.

ID #	Weed Name	Form	Latin Name
101	amaranth, Palmer	plant only	<i>Amaranthus palmeri</i>
102	barnyardgrass	plant or seed	<i>Echinochloa crus-galli</i>
103	bindweed, field	plant or seed	<i>Convolvulus arvensis</i>
104	brome, downy	plant only	<i>Bromus tectorum</i>
105	buckwheat, wild	plant or seed	<i>Fallopia convolvulus</i>
106	carrot, wild	plant or seed	<i>Daucus carota</i>
107	cheat	plant or seed	<i>Bromus secalinus</i>
108	chickweed, common	plant or seed	<i>Stellaria media</i>
109	cocklebur, common	plant or seed as bur	<i>Xanthium strumarium</i>
110	crabgrass, large	plant or seed	<i>Digitaria sanguinalis</i>
111	crownvetch, trailing	plant or seed	<i>Securigera varia</i>
112	dandelion	plant or seed	<i>Taraxacum officinale</i>
113	dock, curly	plant or seed	<i>Rumex crispus</i>
114	dodder	plant or seed	<i>Cuscuta</i> spp.
115	foxtail, giant	plant or seed	<i>Setaria faberi</i>
116	foxtail, green	plant or seed	<i>Setaria viridis</i>
117	foxtail, yellow	plant or seed	<i>Setaria pumila</i>
118	goatgrass, jointed	plant or seed	<i>Aegilops cylindrica</i>
119	groundcherry	plant or seed	<i>Physalis</i> spp.
120	groundsel, cressleaf	plant or seed	<i>Packera glabella</i>
121	hairy galinsoga ^{*New 2025}	plant only	<i>Galinsoga quadriradiata</i> Cav.
122	hemlock, poison ^{*New 2025}	plant only	<i>Conium maculatum</i> L.
123	horsenettle	plant or seed	<i>Solanum carolinense</i>
124	horseweed (marestail)	plant only	<i>Conyza canadensis</i>
125	jimsonweed	plant or seed	<i>Datura stramonium</i>
126	johnsongrass	plant or seed	<i>Sorghum halpense</i>
127	knapweed, Russian	plant only	<i>Rhaponticum repens</i>
128	knotweed, prostrate	plant or seed	<i>Polygonum aviculare</i>
129	kochia	plant or seed	<i>Bassia scoparia</i>
130	kudzu	plant only	<i>Pueraria montana</i> var <i>lobata</i>
131	lambsquarters, common	plant or seed	<i>Chenopodium album</i>
132	lettuce, prickly	plant or seed	<i>Lactuca serriola</i>
133	mallow, common	plant or seed	<i>Malva neglecta</i>
134	milkweed, common	plant or seed	<i>Asclepias syriaca</i>
135	morning glory	plant or seed	<i>Ipomoea</i> spp.
136	mustard, wild	plant or seed	<i>Sinapis arvensis</i>
137	nightshade, black	plant or seed	<i>Solanum nigrum</i>
138	nightshade, silverleaf	plant or seed	<i>Solanum elaeagnifolium</i> Cav.

Weeds List

Conforming with the Weed Science Society of America's standardized name list.

ID #	Weed Name	Form	Latin Name
139	nutsedge	plant or seed as nutlet	<i>Cyperus</i> spp.
140	oat, wild	plant or seed	<i>Avena fatua</i>
141	onion/garlic, wild	plant or seed	<i>Allium</i> spp.
142	pennycress, field	plant or seed	<i>Thlaspi arvense</i>
143	pigweed, redroot	plant or seed	<i>Amaranthus retroflexus</i>
144	plantain, broadleaf	plant or seed	<i>Plantago major</i>
145	plantain, buckhorn	plant or seed	<i>Plantago lanceolata</i>
146	puncturevine	plant or seed	<i>Tribulus terrestris</i>
147	purslane, common	plant or seed	<i>Portulaca oleracea</i>
148	quackgrass	plant or seed	<i>Elymus repens</i>
149	ragweed, common	plant or seed	<i>Ambrosia artemisiifolia</i>
150	ragweed, giant	plant or seed	<i>Ambrosia trifida</i>
151	sandbur, field	plant or seed	<i>Cenchrus spinifex</i> Cav.
152	shepherd's-purse	plant or seed	<i>Capsella bursa-pastoris</i>
153	sicklepod	plant or seed	<i>Senna obtusifolia</i>
154	smartweed	plant or seed	<i>Persicaria</i> spp.
155	sowthistle	plant or seed	<i>Sonchus</i> spp.
156	spurge, leafy	plant or seed	<i>Euphorbia esula</i>
157	spurge, prostrate	plant only	<i>Euphorbia prostrata</i>
158	sunflower, common	plant or seed	<i>Helianthus annuus</i>
159	tansymustard, pinnate	plant or seed	<i>Descurainia pinnata</i>
160	thistle, bull	plant or seed	<i>Cirsium vulgare</i>
161	thistle, Canada	plant or seed	<i>Cirsium arvense</i>
162	thistle, Russian	plant or seed	<i>Salsola tragus</i>
163	velvetleaf	plant or seed	<i>Abutilon theophrasti</i>
164	waterhemp	plant or seed	<i>Amaranthus tuberculatus</i>

Crops List

Conforming with the United States Department of Agriculture plant database.

ID #	Crop Name	Form	Scientific Name
201	alfalfa	plant or seed	<i>Medicago sativa</i>
202	barley	plant or seed	<i>Hordeum vulgare</i>
203	bermudagrass	plant or seed	<i>Cynodon dactylon</i>
204	black bean	seed only	<i>Phaseolus vulgaris</i>
205	broccoli	plant only	<i>Brassica oleracea</i> var. <i>italica</i>
206	buckwheat	plant or seed	<i>Fagopyrum sagittatum</i>
207	cabbage	plant only	<i>Brassica oleracea</i>
208	canola	plant or seed	<i>Brassica napus</i>
209	cantaloupe	plant or seed	<i>Cucumis melo</i> var. <i>cantalupensis</i>
210	carrot	root provided	<i>Daucus carota</i> L. var. <i>sativus</i>
211	cauliflower	plant only	<i>Brassica oleracea</i> var. <i>botrytis</i>
212	cereal rye	plant or seed	<i>Secale cereale</i>
213	chickpea	seed only	<i>Cicer arietinum</i>
214	chili pepper	plant or seed	<i>Capsicum annuum</i>
215	corn	plant only	<i>Zea mays</i>
216	cotton	plant or seed	<i>Gossypium hirsutum</i>
217	cranberry	plant only	<i>Vaccinium macrocarpon</i>
218	cucumber	plant or seed	<i>Cucumis sativus</i>
219	dent corn	seed only	<i>Zea mays</i> var. <i>indentata</i>
220	dry bean	plant only	<i>Phaseolus vulgaris</i>
221	durum wheat	seed only	<i>Triticum durum</i>
222	flax	plant or seed	<i>Linum usitatissimum</i>
223	hops	plant only	<i>Humulus lupulus</i>
224	Kentucky bluegrass	plant or seed	<i>Poa pratensis</i>
225	lentil	plant or seed	<i>Lens culinaris</i>
226	lettuce	plant or seed	<i>Lactuca sativa</i>
227	lima bean	seed only	<i>Phaseolus lunatus</i>
228	oat	plant or seed	<i>Avena sativa</i>
229	onion	plant or seed	<i>Allium cepa</i>
230	orchardgrass	plant or seed	<i>Dactylis glomerata</i>
231	pea	plant or seed	<i>Pisum Sativum</i>
232	peanut	plant or seed	<i>Arachis hypogaea</i>
233	pinto bean	seed only	<i>Phaseolus vulgaris</i>
234	popcorn	seed only	<i>Zea mays</i> var. <i>everta</i>
235	potato	plant only	<i>Solanum tuberosum</i>
236	red bean	seed only	<i>Phaseolus vulgaris</i>
237	red clover	plant or seed	<i>Trifolium pratense</i>
238	red wheat	seed only	<i>Triticum aestivum</i>
239	rice	plant or seed	<i>Oryza sativa</i>
240	safflower	plant or seed	<i>Carthamus tinctorius</i>

Crops List

Conforming with the United States Department of Agriculture plant database.

ID #	Crop Name	Form	Scientific Name
241	sorghum	plant or seed	<i>Sorghum bicolor</i>
242	soybean	plant or seed	<i>Glycine max</i>
243	spinach	plant or seed	<i>Spinacia oleracea</i>
244	squash	plant or seed	<i>Curcubita pepo</i>
245	strawberry	plant only	<i>Fragaria L.</i>
246	Sudangrass	seed only	<i>Sorghum bicolor</i>
247	sugar beet	plant or seed	<i>Beta vulgaris</i>
248	sugarcane	plant only	<i>Saccharum L.</i>
249	sunflower	plant or seed	<i>Helianthus annuus</i>
250	sweet corn	seed only	<i>Zea mays var. saccharata</i>
251	sweet potato	plant only	<i>Ipomoea batatas</i>
252	sweetclover	plant or seed	<i>Melilotus albus</i>
253	tall fescue	plant or seed	<i>Festuca arundinacea</i>
254	timothy	plant or seed	<i>Phleum pratense</i>
255	tobacco	plant or seed	<i>Nicotiana tabacum</i>
256	tomato	plant or seed	<i>Lycopersicon esculentum</i>
257	watermelon	plant or seed	<i>Citrullus lanatus</i>
258	wheat	plant only	<i>Triticum aestivum</i>
259	white bean	seed only	<i>Phaseolus vulgaris</i>
260	white clover	plant or seed	<i>Trifolium repens</i>
261	white wheat	seed only	<i>Triticum aestivum</i>

National Insect List Official Guide

ID #	Common Name	Latin Names, Order: Family for Possible Specimens	Mouth parts	Economic Impact
11	Alfalfa weevil, adult or larva	<i>Hyperica postica</i> , Coleoptera:Curculionidae	C	V
12	Aphid	various species, Homoptera:Aphididae	PS	R
13	Armyworm adult	<i>Pseudaletia unipuncta</i> , Lepidoptera:Noctuidae (true armyworm)	S	IS
		<i>Spodoptera frugiperda</i> , Lepidoptera:Noctuidae (fall armyworm)		
		<i>Spodoptera exigua</i> , Lepidoptera:Noctuidae (beet armyworm)		
14	Armyworm larva	<i>Pseudaletia unipuncta</i> , Lepidoptera:Noctuidae (true armyworm)	C	V
		<i>Spodoptera frugiperda</i> , Lepidoptera:Noctuidae (fall armyworm)		
		<i>Spodoptera exigua</i> , Lepidoptera:Noctuidae (beet armyworm)		
15	Bean leaf beetle	<i>Cerotoma trifurcata</i> , Coleoptera:Chrysomelidae	C	F and V
16	Blister beetle	<i>Epicauta pennsylvanica</i> , Coleoptera:Meloidae (black blister beetle)	C	V
		<i>Epicauta pestifera</i> , Coleoptera:Meloidae (margined blister beetle)		
		<i>Epicauta vittata</i> , Coleoptera:Meloidae (striped blister beetle)		
17	Boll weevil	<i>Anthonomis grandis grandis</i> , Coleoptera:Curculionidae	C	F
18	Chinch bug	<i>Blissus leucoptera</i> , Hemiptera:Lygaeidae	PS	R
19	Colorado potato beetle, adult, or larva	<i>Leptinotarsa decemlineata</i> , Coleoptera:Chrysomelidae	C	V
20	Corn Earworm adult	<i>Helicoverpa zea</i> , Lepidoptera:Noctuidae	S	IS
21	Corn Earworm larva	<i>Helicoverpa zea</i> , Lepidoptera:Noctuidae	C	F and V
22	Corn rootworm adult	<i>Diabrotica barberi</i> , Coleoptera:Chrysomelidae (northern)	C	F and V
		<i>Diabrotica undecimpunctata howardii</i> , Coleoptera:Chrysomelidae (southern)		
		<i>Diabrotica vergifera</i> , Coleoptera:Chrysomelidae (western)		
23	Corn rootworm larva	<i>Diabrotica sp.</i> , Coleoptera:Chrysomelidae	C	V
24	Cutworm adult	<i>Agrotis epsilon</i> , Lepidoptera:Noctuidae (black cutworm)	S	IS
		<i>Peridroma saucia</i> , Lepidoptera:Noctuidae (variegated cutworm)		
		<i>Striacosta albicosta</i> , Lepidoptera:Noctuidae (western bean cutworm)		
25	Cutworm larva	<i>Agrotis epsilon</i> , Lepidoptera:Noctuidae (black cutworm)	C	V
		<i>Peridroma saucia</i> , Lepidoptera:Noctuidae (variegated cutworm)		
		<i>Striacosta albicosta</i> , Lepidoptera:Noctuidae (western bean cutworm)		
26	European corn borer adult	<i>Ostrinia nubilalis</i> , Lepidoptera:Pyrilidae	S	IS
27	European corn borer larva	<i>Ostrinia nubilalis</i> , Lepidoptera:Pyrilidae	C	F and V

ID #	Common Name	Latin Names, Order: Family for Possible Specimens	Mouth parts	Economic Impact
28	Field cricket	<i>Gryllus sp.</i> , Orthoptera:Gryllidae	C	F
29	Flea beetle	<i>Chaetocnema pulicaria</i> , Coleoptera:Chrysomelidae (corn flea beetle)	C	V
		<i>Systema blanda</i> , Coleoptera:Chrysomelidae (palestriped flea beetle)		
		<i>Phyllotreta striolata</i> , Coleoptera:Chrysomelidae (striped flea beetle)		
30	Grain weevil	<i>Sitophilus granarius</i> , Coleoptera:Curculionidae (granary weevil)	C	F
		<i>Sitophilus oryzae</i> , Coleoptera:Curculionidae (rice weevil)		
31	Grasshopper	various species, Orthoptera:Acrididae	C	V
32	Green lacewing	<i>Chrysopa sp.</i> , Neuroptera:Chrysopidae	C	B
33	Honeybee	<i>Apis mellifera</i> , Hymenoptera:Apidae	CL	B
34	Imported cabbageworm	<i>Pieris rapae</i> , Lepidoptera:Pieridae	C	FV
35	Japanese beetle	<i>Popilla japonica</i> , Coleoptera:Scarabaeidae	C	FV
36	Lady beetle adult or larva	various species, Coleoptera:Coccinellidae	C	B
37	Leafhopper	<i>Empoasca fabae</i> , Homoptera:Cicadellidae (potato leafhopper)	PS	R
38	Mexican bean beetle, adult or larva	<i>Epilachna varivestis</i> , Coleoptera:Coccinellidae	C	FV
39	Saltmarsh caterpillar	<i>Estigmene acrea</i> , Lepidoptera:Arctiidae	C	V
40	Spider mite	various species, Trombidiformes:Tetranychidae	PS	R
41	Spittlebug	various species, Hemiptera:Cercopidae	PS	R
42	Squash bug	<i>Anasa tristis</i> , Hemiptera:Coreidae	PS	R
43	Stink bug	various species, Hemiptera:Pentatomidae	PS	R
44	Striped cucumber beetle	<i>Acalymma vittatum</i> , Coleoptera:Chrysomelidae	C	FV
45	Tarnished plant bug	<i>Lygus lineolaris</i> , Hemiptera:Miridae	PS	R
46	Thrips	various species, Thysanoptera:Thripidae	PS	R
47	Tomato or tobacco hornworm	<i>Manduca sp.</i> , Lepidoptera:Spingidae	C	FV
48	whitefly	various species, Homoptera:Aleryodidae	RS	V
49	wireworm	various species, Coleoptera:Elateridae	C	V

Mouth parts key:

- C (chewing)
- CL (chewing-lapping)
- PS (piercing sucking)
- RS (Rasping Sucking)
- S (siphoning)

Economic impact key:

Must indicate all options in response

- B (Beneficial)
- F (fruit/flower destruction)
- V (vegetative part destruction)
- FV (Fruit/Flower AND Vegetative part destruction)
- IS (indicator species)
- R (removal of plant fluids)

Agronomic Disorders Practicum Scorecard

Name					Member Number
Chapter					State
					Team Number
		Member Answer	Possible Points	Member Score	Causal Category
1.	Causal Category:		3		Biological (B) Cultural (C) Environmental (E) Agents Bacteria (B) Chemical (Ch) Compaction (Co) Drought (D) Frost damage (Fr) Fungus (Fn) Hail (Ha) Heat (Ht) Insect (I) Lightning (L) Mechanical (Me) Moisture (Mo) Nematodes (Ne) Nutritional (Nu) Pollution (P) Sun scald (S) Virus (V) Wind damage(W) Parts of Plant Damaged Reproductive parts (R) Vegetative parts (Ve) Value Added Agricultural Commodity (Va) More than one (M)
	Agent:		4		
	Part of Plant Damaged:		3		
2.	Causal Category:		3		
	Agent:		4		
	Part of Plant Damaged:		3		
3.	Causal Category:		3		
	Agent:		4		
	Part of Plant Damaged:		3		
4.	Causal Category:		3		
	Agent:		4		
	Part of Plant Damaged:		3		
5.	Causal Category:		3		
	Agent:		4		
	Part of Plant Damaged:		3		
6.	Causal Category:		3		
	Agent:		4		
	Part of Plant Damaged:		3		
7.	Causal Category:		3		
	Agent:		4		
	Part of Plant Damaged:		3		
8.	Causal Category:		3		
	Agent:		4		
	Part of Plant Damaged:		3		
9.	Causal Category:		3		
	Agent:		4		
	Part of Plant Damaged:		3		
10.	Causal Category:		3		
	Agent:		4		
	Part of Plant Damaged:		3		
TOTAL POINTS EARNED OUT OF 100 POSSIBLE					

Agronomic Disorders Definitions

Answer Definitions – Causal Category

Causal Category	Definition	Examples
Biological	Caused by a living organism	Insects, fungus, virus, bacteria, animals, parasitic plants, etc.
Cultural	Caused by a change or shift in routine agricultural traditions, behaviors, or mannerisms	Crop rotation, equipment, farming practices, etc.
Environmental	Caused by a force of nature	Wind, water, temperature, atmospheric conditions, etc.

Answer Definitions – Agents:

Agents	Definition – *seed, vegetative parts, reproductive parts, or end-product
Bacteria (B)	Caused by a bacterial agent. Bacteria are microscopic living organisms that have only one cell
Chemical (Ch)	Caused when a plant comes in contact with a naturally or manufactured product. Either on the leaf surface or in contact with the soil
Compaction (Co)	Caused when soil is compacted by some means
Drought (D)	Caused when there is a lack of irrigation or rainfall
Frost damage (Fr)	Caused when temperatures rapidly drop or fall below freezing
Fungus (Fn)	Caused when a crop is affected by a member of any of a kingdom (Fungi) of saprophytic and parasitic spore-producing eukaryotic typically filamentous organisms formerly classified as plants that lack chlorophyll and include molds, rusts, mildews, smuts, mushrooms, and yeasts
Hail (Ha)	Caused by hail damage
Heat (Ht)	Caused by excessive heat
Insect (I)	Caused by damage from an insect. Insects injure plants by chewing leaves, stems, and roots, sucking juices, egg laying or transmitting diseases.
Lightning (L)	Caused by damage from lightning
Mechanical (Me)	Caused by mechanical damage. Mechanical damage occurs when plant parts are crushed, cut, punctured, rubbed, or struck, or otherwise damaged due to accidental or deliberate physical actions due to machine malfunction or improper machine operation
Moisture (Mo)	Caused by overwatering or flooded conditions
Nematodes (Ne)	When a plant is damaged by soil nematodes
Nutritional (Nu)	Caused by a lack of or an excessive amount of plant nutrients
Pollution (P)	Caused by a form of pollution. Major forms of pollution include air pollution, light pollution, litter, noise pollution, plastic pollution, soil contamination, radioactive contamination, thermal pollution, visual pollution, and water pollution
Sun scald (S)	Damage to plant tissue, especially bark or fruit, caused by exposure to excessive sunlight
Virus (V)	Caused by a viral infection. Viruses multiply only in living cells. They are too small to be seen with a light microscope and are therefore considered to be submicroscopic. Viruses are composed of a nucleic acid (most plant viruses contain ribonucleic acid [RNA]) and are enclosed in a protein coat.
Wind damage(W)	Caused by damage from excessive wind

Answer Definitions and Examples – Plant Part Displayed:

Parts of Plants Displayed	Definition	Examples
Vegetative (Ve)	When the disease or disorder appears on the vegetative part of the plant. Parts of a plant which do not participate in sexual reproduction process are called vegetative parts.	Roots, stems, and leaves, tubers, slips, and bulbs used for planting,
Reproductive (R)	When the disease or disorder appears on the reproductive part of the plant. Parts of a plant which participate in the sexual reproduction process are called reproductive parts.	Flowers, fruits, and seeds and in the field
^{Updated term} Value Added Agricultural Commodity (VA)	When the disease or disorder appears on the marketable part of a plant	What will be harvested or sold - Ear of corn, cotton lint, potato tuber, onion, tomato, peanut
More than One (M)	When the disease or disorder appears on more than one (1) part of a plant	Must display the disease or disorder on at least two (2) of the examples above

Further Definitions –

- Damage to the reproductive part of the plant the damage can directly impact the market value of the final product thus leading to damage of the marketed Value Added Agricultural Commodity. If both the reproductive part of the plant and the post-harvest Value Added Agricultural Commodity are displayed as damaged, then the answer is “more than one”.
- If the damage is to the reproductive part of the plant, but the post-harvest end-product / ag commodity is not displayed or displayed as sound, the answer is “reproductive”.
- If only the post-harvest end-product / ag commodity is shown as damaged, the answer is “Value Added Agricultural Commodity”.
- A Value-Added Agricultural Commodity may be displayed separately from the plant in post-harvest form.
- If more than one picture or specimen is used to constitute a given sample. Answer disorder as a complete sample.

Insect Identification Rubric

Name					Member Number
Chapter					State
					Team Number
		Member Answer	Possible Points	Member Score	Possible Answers Identification
1.	Identification:		4		11. Alfalfa weevil, adult or larva 12. Aphid 13. Armyworm adult 14. Armyworm larva 15. Bean leaf beetle 16. Blister beetle 17. Boll weevil 18. Chinch bug 19. Colorado potato beetle, adult or larva 20. Corn Earworm adult 21. Corn Earworm larva 22. Corn rootworm adult 23. Corn rootworm larva 24. Cutworm adult 25. Cutworm larva 26. European corn borer adult 27. European corn borer larva 28. Field cricket 29. Flea beetle 30. Grain weevil 31. Grasshopper 32. Green lacewing 33. Honeybee 34. Imported cabbageworm 35. Japanese beetle 36. Lady beetle adult or larva 37. Leafhopper 38. Mexican bean beetle, adult or larva 39. Saltmarsh caterpillar 40. Spider mite 41. Spittlebug 42. Squash bug 43. Stink bug 44. Striped cucumber beetle 45. Tarnished plant bug 46. Thrips 47. Tomato or tobacco hornworm 48. Whitefly 49. Wireworm Economic Impact Must include all options in response B (Beneficial) F (fruit/flower destruction) IS (indicator species) R (removal of plant fluids) V (vegetative part destruction) Mouth parts C (chewing) CL (chewing-lapping) PS (piercing sucking) RS (Rasping Sucking) S (siphoning)
	Economic Impact:		3		
	Mouth Part:		3		
2.	Identification:		4		
	Economic Impact:		3		
	Mouth Part:		3		
3.	Identification:		4		
	Economic Impact:		3		
	Mouth Part:		3		
4.	Identification:		4		
	Economic Impact:		3		
	Mouth Part:		3		
5.	Identification:		4		
	Economic Impact:		3		
	Mouth Part:		3		
6.	Identification:		4		
	Economic Impact:		3		
	Mouth Part:		3		
7.	Identification:		4		
	Economic Impact:		3		
	Mouth Part:		3		
8.	Identification:		4		
	Economic Impact:		3		
	Mouth Part:		3		
9.	Identification:		4		
	Economic Impact:		3		
	Mouth Part:		3		
10.	Identification:		4		
	Economic Impact:		3		
	Mouth Part:		3		
TOTAL POINTS EARNED OUT OF 100 POSSIBLE					