

# AGRONOMY



## PURPOSE

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

## ELIGIBILITY

The participant must be an active member of a chartered West Virginia FFA Chapter and enrolled in grades 9, 10, 11, or 12. Each chapter may enter one team.

## EVENT PROCEDURE

The event will be a team event consisting of four students. All 4 team members scores will be calculated in the team total. A team may compete with less than 4 members. FFA members will wear official dress or professional dress as it pertains to the profession.

Under no circumstances will any participants be allowed to handle any of the items in the identification portion of the practicums. Any infraction of this rule will result in team elimination from the event.

No FFA advisors/coaches will be allowed in the area of the contest, but arrangements will be made to view the specimens following the contest.

## PRACTICUMS

A general knowledge exam, identification, grain and seed judging practicum, and soils

## EVENT MATERIALS

### MATERIALS STUDENTS MUST PROVIDE

- Pencils
- Clipboards
- Electronic Calculator

## Individual Practicum

### IDENTIFICATION PRACTICUM

#### CROP/WEED IDENTIFICATION -EVERY YEAR

Crop Identification (30 samples). The student will record the common name (as it appears in the following list) of plant or seed specimens selected from the following groups.

Plants will be fresh or mounted specimens. Seed will be either pure samples (in vials) or mixtures. If used in mixtures, the number of seeds will be used in about equal proportions and the number of kinds of seed indicated for each mixture. 4 Points will be awarded for every correct identification.

#### PLANT DISORDER IDENTIFICATION-EVERY YEAR

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-EVERY YEAR

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.

#### GENERAL KNOWLEDGE EXAMINATION-EVERY YEAR

A 50 multiple choice question exam will be given that covers all areas of the agronomy industry. The test will focus on knowledge and understanding of fundamental crop production. Each question is worth 4 points. Participants will have a maximum of 40 minutes to complete the exam.

Test questions will come from a test bank provided by the contest coordinator.

#### GRAIN AND SEED JUDGING- EVERY YEAR

Students will be given four classes of grain/seed to judge. **In addition they will answer 4-5 questions associated with the judging factors for one or more of the classes.** Questions may be true/false and/or multiple choice and will be based upon the factors/criteria used to judge the classes. Classes may include winter wheat, winter barley, oats, shelled corn, soybeans, timothy, red alsike or sweet clover, alfalfa, and buckwheat. 100 POINTS

### SKILLS PRACTICUM

#### SOILS-EVERY YEAR

Each participant will be responsible for answering 20-25 questions 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
  - o Relative drainage (e.g., poor, moderate, well).
  - o Relative topographic position (e.g., summit, slope, depression).
  - o Depth to water table.
  - o Frost free period.
- o Identify the USDA land capability classes and answer problem-solving questions related to various classes.
- o Use soil survey to locate specific sites, use of suggested soil spots and questions related to the soil survey map.
- o Interpret graphs and tables of data based on soil parameters.

## SCORING

ACTIVITY	INDIVIDUAL POINTS	TEAM POINTS
CROP/WEED IDENTIFICATION	120	480
PLANT DISORDER	100	400
INSECT IDENTIFICATION	100	400
GENERAL KNOWLEDGE EXAM	100	400
TEAM ACTIVITY (2025)		200
SOILS	100	400
TOTAL	520	2280

## TIE BREAKERS

In the event of a tie in individual scores, the following events will be used in order to determine award recipients:

### INDIVIDUAL

1. INDIVIDUAL TOTAL ID SCORE

### TEAM

1. TEAM TOTAL ID SCORES

## 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. The following list contains references that may prove helpful during event preparation

## IDENTIFICATION SPECIMEN LIST : Can be plant or seed sample

CROP and WEED	
001.	Flint Corn
002.	Pop Corn
003.	Sweet Corn
004.	White Dent Corn
005.	Yellow Dent Corn
006.	Bearded Wheat
007.	Beardless Wheat
008.	Wheat (seed)
009.	Oats
010.	Barley (seed)
011.	Hooded barley
012.	Bearded barley
013.	Rye
014.	Canada bluegrass
015.	Kentucky bluegrass
016.	Orchardgrass
017.	Perennial ryegrass
018.	Redtop
019.	Reed canarygrass
020.	Sudangrass
021.	Sweet vernal
022.	Tall fescue
023.	Tall meadow oatgrass
024.	Timothy
025.	Velvetgrass
026.	Alfalfa
027.	Alsike clover
028.	Birdsfoot trefoil
029.	Crimson clover
030.	Crownvetch
031.	Hairy vetch
032.	Koren lespedeza

033.	Red clover
034.	Sericea lespedeza
035.	Sweetclover
036.	White clover
037.	Buckwheat
038.	Soybeans
039.	Annual fleabane
040.	Barnyardgrass
041.	Beggars tick
042.	Broadleaf plantain
043.	Broomsedge
044.	Buckhorn plantain
045.	Canada thistle
046.	Cheat or chess
047.	Chicory
048.	Chickweed
049.	Cocklebur
050.	Corn cockle
051.	Crabgrass
052.	Dandelion
053.	Dock
054.	Dodder
055.	Fall panicum
056.	Galinsoga
057.	Goldenrod
058.	Ground Ivy
059.	Giant Ragweed
060.	Green Foxtail
061.	Heal-all
062.	Horse nettle
063.	Ironweed
064.	Jimsonweed
065.	Joy Pye

066.	Johnsongrass
067.	Lambsquarters
068.	Morning Glory
069.	Nutsedge
070.	Oxeye daisy
071.	Peppergrass
072.	Pokeweed
073.	Povertygrass
074.	Pigweed
075.	Purslane
076.	Quackgrass
077.	Ragweed
078.	Smartweed
079.	Sorrel, sheep or red
080.	Spanish Nettle
081.	Speedwell
082.	Three-seeded mercury
083.	Velvet Leaf
084.	Wild Carrot
085.	Wild Mustard
086.	Wild Onion
087.	Yarrow
088.	Yellow Foxtail

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	I S
		<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 & 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 & V
22.	Corn rootworm adult	<i>Diabrotica barberi</i> , Coleoptera:Chrysomelidae (northern)	C	F & 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	I S
		<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 & V
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	F & V
35.	Japanese beetle	<i>Popilla japonica</i> , Coleoptera:Scarabaeidae	C	F & V

ID #	Common Name	Latin Names, Order: Family for Possible Specimens	Mouth parts	Economic Impact
36.	Lady beetle adult or larva	various species, Coleoptera:Coccinellidae	C	B
37.	Leafhopper	Empoasca fabae, Homoptera:Cicadellidae (potato leafhopper)	PS	R
38.	Mexican bean beetle, adult or larva	Epilachna varivestis, Coleoptera:Coccinellidae	C	F and V
39.	Saltmarsh caterpillar	Estigmene acrea, Lepidoptera:Arctiidae	C	V
40.	Spider mite	various species, Trombidiformes:Tetranychidae	RS	V
41.	Spittlebug	various species, Hemiptera:Cercopidae	PS	R
42.	Squash bug	Anasa tristis, Hemiptera:Coreidae	PS	R
43.	Stink bug	various species, Hemiptera:Pentatomidae	PS	R
44.	Striped cucumber beetle	Acalymma vittatum, Coleoptera:Chrysomelidae	C	F and V
45.	Tarnished plant bug	Lygus lineolaris, Hemiptera:Miridae	PS	R
46.	Thrips	various species, Thysanoptera:Thripidae	RS	V
47.	Tomato or tobacco hornworm	Manduca sp., Lepidoptera:Sphingidae	C	F and V
48.	whitefly	various species, Homoptera: Aleryodidae	RS	V
49.	wireworm	various species, Coleoptera:Elateridae	C	V

C (chewing)

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

B (Beneficial)

F (fruit/flower destruction) IS (indicator species)

R (removal of plant fluids)

V (vegetative part destruction)

# Agronomic Disorders Practicum

		Member Answer	Possible Points	Member Score	Causal Category
1.	Casual Category:		3		<b>CASUAL CATEGORY</b> Biological (B) Cultural (C) Environmental (E)
	Agent:		4		
	Part of Plant Displayed:		3		
2.	Casual Category:		3		<b>AGENTS</b> 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)
	Agent:		4		
	Part of Plant Displayed:		3		
3.	Casual Category:		3		<b>Parts of Plant Displayed</b> Reproductive parts (R) Vegetative parts (Ve) Vascular bundles (Va) More than one (M)
	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		
<b>TOTAL POINTS EARNED OUT OF 100 POSSIBLE</b>					

# Insect Identification Scorecard

		Member	Possible	Member	
		Answer	Points	Score	
1.	Identification:		4		<u>Identification</u> Alfalfa weevil, adult or larva Aphid Armyworm adult Armyworm larva Bean leaf beetle Blister beetle Boll weevil Chinch bug Colorado potato beetle, adult or larva Corn Earworm adult Corn Earworm larva Corn rootworm adult Corn rootworm larva Cutworm adult Cutworm larva European corn borer adult European corn borer larva Field cricket Flea beetle Grain weevil Grasshopper Green lacewing Honeybee Imported cabbageworm Japanese beetle Lady beetle adult or larva Leafhopper Mexican bean beetle, adult or larva Saltmarsh caterpillar Spider mite Spittlebug Squash bug Stink bug Striped cucumber beetle Tarnished plant bug Thrips Tomato or tobacco hornworm Whitefly Wireworm  <u>Economic Impact</u> Must include all options in response B (Beneficial) F (fruit/flower destruction) IS (indicator species) R (removal of plant fluids) V (vegetative part destruction)  <u>Mouth parts</u> 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					

**Incorrect Marks**      **Correct Mark**

This sheet is for demonstration and practice only. You must use a real scan sheet for actual competition.

Team #			
0	0	0	0
1	1	1	1
2	2	2	2
3	3	3	3
4	4	4	4
5	5	5	5
6	6	6	6
7	7	7	7
8	8	8	8
9	9	9	9

Code	
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

[illegible]

Assessments					
1	A	B	C	D	E
2	A	B	C	D	E
3	A	B	C	D	E
4	A	B	C	D	E
5	A	B	C	D	E
6	A	B	C	D	E
7	A	B	C	D	E
8	A	B	C	D	E
9	A	B	C	D	E
10	A	B	C	D	E

Solutions					
11	A	B	C	D	E
12	A	B	C	D	E
13	A	B	C	D	E
14	A	B	C	D	E
15	A	B	C	D	E
16	A	B	C	D	E
17	A	B	C	D	E
18	A	B	C	D	E
19	A	B	C	D	E
20	A	B	C	D	E

General Knowledge Exam											
1	A	B	C	D	E	26	A	B	C	D	E
2	A	B	C	D	E	27	A	B	C	D	E
3	A	B	C	D	E	28	A	B	C	D	E
4	A	B	C	D	E	29	A	B	C	D	E
5	A	B	C	D	E	30	A	B	C	D	E
6	A	B	C	D	E	31	A	B	C	D	E
7	A	B	C	D	E	32	A	B	C	D	E
8	A	B	C	D	E	33	A	B	C	D	E
9	A	B	C	D	E	34	A	B	C	D	E
10	A	B	C	D	E	35	A	B	C	D	E
11	A	B	C	D	E	36	A	B	C	D	E
12	A	B	C	D	E	37	A	B	C	D	E
13	A	B	C	D	E	38	A	B	C	D	E
14	A	B	C	D	E	39	A	B	C	D	E
15	A	B	C	D	E	40	A	B	C	D	E
16	A	B	C	D	E	41	A	B	C	D	E
17	A	B	C	D	E	42	A	B	C	D	E
18	A	B	C	D	E	43	A	B	C	D	E
19	A	B	C	D	E	44	A	B	C	D	E
20	A	B	C	D	E	45	A	B	C	D	E
21	A	B	C	D	E	46	A	B	C	D	E
22	A	B	C	D	E	47	A	B	C	D	E
23	A	B	C	D	E	48	A	B	C	D	E
24	A	B	C	D	E	49	A	B	C	D	E
25	A	B	C	D	E	50	A	B	C	D	E

Judging Classes		1	2
1	1234		
2	1243		
3	1324		
4	1342		
5	1423		
6	1432		
7	2134		
8	2143		
9	2314		
10	2341		
11	2413		
12	2431		
13	3124		
14	3142		
15	3214		
16	3241		
17	3412		
18	3421		
19	4123		
20	4132		
21	4213		
22	4231		
23	4312		
24	4321		

Sample #	Insect Identification																		Economic Impact	Life Cycle	Mouth Parts								
	Identification																												
	Example																												
3	1	2	●	4	7	0	1	2	3	4	5	6	●	8	9	None or predatory Fruit/flower destruction Vegetative part destruction Removal of plant fluids	Complete Incomplete None	Chewing Chewing-lapping Rasping-sucking Piercing-sucking Sponging Siphoning											
Tens Digit				Ones Digit																									
1		1	2	3	4		0	1	2	3	4	5	6	7	8				9	NP	F	V	R	C	I	N	C	CL	RS
2		1	2	3	4		0	1	2	3	4	5	6	7	8	9	NP	F	V	R	C	I	N	C	CL	RS	PS	Sp	SI
3		1	2	3	4		0	1	2	3	4	5	6	7	8	9	NP	F	V	R	C	I	N	C	CL	RS	PS	Sp	SI
4		1	2	3	4		0	1	2	3	4	5	6	7	8	9	NP	F	V	R	C	I	N	C	CL	RS	PS	Sp	SI
5		1	2	3	4		0	1	2	3	4	5	6	7	8	9	NP	F	V	R	C	I	N	C	CL	RS	PS	Sp	SI
6		1	2	3	4		0	1	2	3	4	5	6	7	8	9	NP	F	V	R	C	I	N	C	CL	RS	PS	Sp	SI
7		1	2	3	4		0	1	2	3	4	5	6	7	8	9	NP	F	V	R	C	I	N	C	CL	RS	PS	Sp	SI
8		1	2	3	4		0	1	2	3	4	5	6	7	8	9	NP	F	V	R	C	I	N	C	CL	RS	PS	Sp	SI
9		1	2	3	4		0	1	2	3	4	5	6	7	8	9	NP	F	V	R	C	I	N	C	CL	RS	PS	Sp	SI
10		1	2	3	4		0	1	2	3	4	5	6	7	8	9	NP	F	V	R	C	I	N	C	CL	RS	PS	Sp	SI

Score 1	Score 2	Score 3	Score 4
0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
1 1 1 1	1 1 1 1	1 1 1 1	1 1 1 1
2 2 2 2	2 2 2 2	2 2 2 2	2 2 2 2
3 3 3 3	3 3 3 3	3 3 3 3	3 3 3 3
4 4 4 4	4 4 4 4	4 4 4 4	4 4 4 4
5 5 5 5	5 5 5 5	5 5 5 5	5 5 5 5
6 6 6 6	6 6 6 6	6 6 6 6	6 6 6 6
7 7 7 7	7 7 7 7	7 7 7 7	7 7 7 7
8 8 8 8	8 8 8 8	8 8 8 8	8 8 8 8
9 9 9 9	9 9 9 9	9 9 9 9	9 9 9 9

Sample #:	Causal Category	Agronomic Disorders																Parts of Plant Displayed								
		Agents																								
		Biological	Cultural	Environmental	Bacteria	Chemical	Compaction	Drought	Frost damage	Fungus	Hail	Heat	Insect	Lightning	Mechanical	Moisture	Nematodes	Nutritional	Pollution	Sun scald	Virus	Wind damage	Reproductive	Vegetative	Vascular Bundles	More than one
1	B	C	E		B	Ch	Co	D	Fr	Fn	Ha	Ht	I	L	Me	Mo	Ne	Nu	P	S	V	W				
2	B	C	E		B	Ch	Co	D	Fr	Fn	Ha	Ht	I	L	Me	Mo	Ne	Nu	P	S	V	W				
3	B	C	E		B	Ch	Co	D	Fr	Fn	Ha	Ht	I	L	Me	Mo	Ne	Nu	P	S	V	W				
4	B	C	E		B	Ch	Co	D	Fr	Fn	Ha	Ht	I	L	Me	Mo	Ne	Nu	P	S	V	W				
5	B	C	E		B	Ch	Co	D	Fr	Fn	Ha	Ht	I	L	Me	Mo	Ne	Nu	P	S	V	W				
6	B	C	E		B	Ch	Co	D	Fr	Fn	Ha	Ht	I	L	Me	Mo	Ne	Nu	P	S	V	W				
7	B	C	E		B	Ch	Co	D	Fr	Fn	Ha	Ht	I	L	Me	Mo	Ne	Nu	P	S	V	W				
8	B	C	E		B	Ch	Co	D	Fr	Fn	Ha	Ht	I	L	Me	Mo	Ne	Nu	P	S	V	W				
9	B	C	E		B	Ch	Co	D	Fr	Fn	Ha	Ht	I	L	Me	Mo	Ne	Nu	P	S	V	W				
10	B	C	E		B	Ch	Co	D	Fr	Fn	Ha	Ht	I	L	Me	Mo	Ne	Nu	P	S	V	W				

