

WYOMING FFA

AGRONOMY CDE

RULES AND REGULATIONS

2017

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WYOMING FFA AGRONOMY CDE

GENERAL INFORMATION

The annual agronomy contest is one of the state Career and Leadership Development Events held in cooperation with the University of Wyoming.

It is sponsored by the Department of Plant Sciences and the Department of Ecosystem and Management, College of Agriculture and Natural Resources, under the supervision of Wendy Cecil.

Vocational agricultural instructors should contact Wendy Cecil, Department of Plant Sciences, University of Wyoming, 1000 E. University Ave., Dept. 3354, Laramie, Wyoming, 82071 (office 307-766-2243 or cell 307-761-0099), wcecil@uwyo.edu for more detailed information on any phase of the agronomy contest.

Purpose

The purpose of the Wyoming FFA Agronomy CDE 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 this event, participants should 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
 - Crop grading
 - Forage quality
 - Soils and land management

General Rules

- 1) The agronomy team will consist of four members.
- 2) The agronomy contest will consist of eight blocks which will be divided into four sections.

Section A	Written Test (100 questions)*	300 points
Section B	Entomology (50 questions)*	150 points
	Commercial Grain Grading (2 Problems)	150 points
Section C	Forages (Judging and Identification)	
	Judging Grass and Alfalfa Hay*	
	(1 class of each – no reasons)	100 points
	ID of Forages- 15 mounts, pts each	60 points
	Plant and Seed Identification	
	A. Weed Plant Mounts with color photos from weeds of the west*	60 points
	(15 specimens)	
	B. Crop and Weed Seed Id.*	80 points
	(20 specimens)	
Section D	Soils & Land Judging	300 points
	TOTAL	1200 points

*Indicates use of bubble sheet.

Event Rules

1. The agronomy team may have a maximum of four members.
2. It is highly recommended that participants wear official FFA dress for each event. Comfortable shoes should be considered.
3. All participants will be given an identification number by which they will be designated throughout the event.
4. 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.
5. Each of the four team members will be assigned to a different judging section and move accordingly.
6. All written material will be furnished for the event. No written materials such as tests, problems and worksheets should be removed from the site.
7. **Any participant in possession of an electronic device in the event area is subject to disqualification.**
8. The agronomy contest will consist of eight blocks, which will be divided into four sections.
9. Each section will be allotted **45 minutes**. Contestants will be notified at the halfway point and when **5 minutes** remain. If accommodations are required, notification of at least 30 days prior the contest is required and an alternate CDE will be provided.
10. No communication with other contestants, other members of the team, coach, or anyone else except the person(s) in charge will be permitted while the contest is underway.
11. **It is required that each contestant have a clean writing board, magnifying glass, and two sharpened No. 2 pencils when entering the contest area.** No rules or regulations may be used by the contestant.

12. Scratch paper and calculators will be provided.
13. Four samples shall constitute a judging class.
14. All classes shall be numbered 1,2,3,4 from left to right.
15. Forage classes will be placed on factors which can be determined by exterior examination. All foreign materials added to the grass and alfalfa classes should be easily recognized by the contestants. **No contestant will be allowed to separate the sample and so destroy the general appearance.**
16. A list of plants, seeds, and insects which may be included in the identification sections is attached and constitutes a portion of the rules and regulations.
17. The list of materials from which selections may be made for the grading problems follows and is a part of the rules and regulations.
18. Official Grain Standards of the United States Handbook will be provided.
19. Guide to Wyoming Fertilizer Recommendations will be provided.
20. **Infraction of rules shall be followed by dismissal or point reduction.**

SPECIAL RULES

PART A – AGRONOMY TEST

1. Test: 100 questions
2. Time: 45 minutes
3. Value: 300 points
4. Test will be made up of true or false and multiple choice questions. Questions will come primarily from the study guide prepared by the Department of Plant Sciences.
5. 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.
6. Examples:
 - a. A stolon is an underground stem.
 - a. true
 - b. false
 - b. Ergoty wheat shall be wheat which contains more than
 - a. 3.0 percent ergot
 - b. 0.3 percent ergot
 - c. 1.0 percent ergot

PART B – JUDGING OF GRASS & ALFALFA

1. Test: 2 classes
2. Time: 45 minutes (Forage Judging and Plant/Seed ID are one section)
3. Value: 100 points

1. Judging will consist of one class of grass forage and one class of alfalfa forage.
2. Each class will consist of four specimens to be placed 1,2,3,4.
3. 50 points /class will be allocated.
4. The following scorecard will be used for each class:

A. Leaf capture ratio of leaves to stems.	20 points
i) A high percentage of leaves are desirable.	
B. Texture/size of the stems.	20 points
i) Large stems may decrease quality.	
C. Color - bright green color present.	10 points
i) Weathering and exposure results in bleaching.	
D. Maturity – Seedbearing to immature.	20 points
i) Maturity decreases quality.	
E. Foreign material – Weeds and debris.	10 points
i) Noninjurious and injurious.	
(a) Noninjurious: weeds, straw, etc.	
(b) Injurious: sandbur, poisonous plants, bearded grasses.	
F. Purity.	10 points
i) Other forage or crop species present.	
G. Condition – refers to soundness of hay.	10 points
i) Sour, odor, moldy, excess moisture.	
TOTAL	100 POINTS

5. Grass will be class 1 on the bubble sheet.
6. Alfalfa will be class 2 on the bubble sheet.
7. The following placings shall be used in the contest:

FORAGE JUDGING

Select the bubble that corresponds to your placing opposite the appropriate class listed below:

- | | | | |
|------------|-------------|-------------|-------------|
| 1. 1-2-3-4 | 7. 2-1-3-4 | 13. 3-1-2-4 | 19. 4-1-2-3 |
| 2. 1-2-4-3 | 8. 2-1-4-3 | 14. 3-1-4-2 | 20. 4-1-3-2 |
| 3. 1-3-2-4 | 9. 2-3-1-4 | 15. 3-2-1-4 | 21. 4-2-1-3 |
| 4. 1-3-4-2 | 10. 2-3-4-1 | 16. 3-2-4-1 | 22. 4-2-3-1 |
| 5. 1-4-2-3 | 11. 2-4-1-3 | 17. 3-4-1-2 | 23. 4-3-1-2 |
| 6. 1-4-3-2 | 12. 2-4-3-1 | 18. 3-4-2-1 | 24. 4-3-2-1 |

PART C – ENTOMOLOGY CONTEST

1. Test: 50 questions
2. Time: 45 minutes (Entomology and Commercial Grain Grading are one section)
3. Value 150 points
4. Format of test will be insect specimen photos projected through PowerPoint. 2.5 minutes will be allotted for each slide. There will be 5 questions per slide on the insect in the photo. The contestant will enter the 3-digit code from the Entomology List provided onto the bubble sheet.
5. Example of questions associated with slide:
 1. Common name #: 101
 2. Order #: 202
 3. Stage Pictured #: 304
 4. Mouthpart #: 401
 5. Economic Impact #: 503

Entomology List

ID#	Specimen
101	Alfalfa looper
102	Alfalfa weevil
103	Aphid – corn leaf species
104	Aphid – Russian wheat species
105	Aphid – spotted alfalfa species
106	Aphid – sugarbeet root species
107	Armyworm larva
108	Assassin bugs (many species in the <i>Reduviidae</i> Family)
109	Bean leaf beetle
110	Blister beetles (4 species in the genus <i>Epicauta</i>)
111	Boll weevil
112	Chinch bug
113	Colorado potato beetle
114	Corn earworm larva
115	Corn rootworm larva
116	Cutworm larva
117	Earwig (many species in the Order <i>Dermaptera</i>)
118	European corn borer larva
119	Field cricket
120	Flea beetles
121	Granary weevil
122	Grasshopper, Slantface subfamily
123	Grasshopper, Bandwing subfamily
124	Green lacewing
125	Ground beetles
126	Honeybee
127	Japanese beetle
128	Lady beetle larva
129	Leafcutter bee
130	Leaf skeletonizers (many pest species of moth caterpillars)
131	Leafhoppers (all members of the Family <i>Cicadellidae</i>)
132	Lygus bugs
133	Mexican bean beetle
134	Mormon cricket
135	Mountain pine beetle
136	Pink bollworm larva
137	Saltmarsh caterpillar/wooly worm
138	Scale insects (hard or soft insects that attach to plants)
139	Spider mites
140	Spittle bug
141	Spotted cucumber beetle/Southern corn rootworm beetle
142	Stink bugs (many common species in Family <i>Pentatomidae</i>)
143	Sugarbeet root maggot
144	Flower Fly (many species in the Family <i>Syrphidae</i>)
145	Tobacco/tomato hornworm larva
146	Thrips, Western flower species
147	Western corn rootworm beetle
148	White grubs (larvae of many species of Scarab beetles)
149	Whiteflies (many species in the <i>Aleyrodidae</i> Family)
150	Wireworms

Entomology List	
ID#	Taxonomic Order
201	<i>Acari</i>
202	<i>Coleoptera</i>
203	<i>Derrmaptera</i>
204	<i>Diptera</i>
205	<i>Hemiptera</i>
206	<i>Homoptera</i>
207	<i>Hymenoptera</i>
208	<i>Lepidoptera</i>
209	<i>Neuroptera</i>
210	<i>Orthoptera</i>
ID#	Developmental Stage in Photo
301	Larva – Complete metamorphosis (AKA Holometabolous)
302	Nymph – Incomplete metamorphosis (AKA Hemimetabolous)
303	Ametabolous – (Very gradual change in form)
304	Adult
ID#	Mouth Parts
401	Chewing
402	Chewing – lapping
403	Rasping – sucking
404	Piercing – sucking beak
405	Sponging
406	Proboscis for nectar feeding
ID#	Economic Impact
501	Beneficial (pollination or insect predation)
502	Fruit/Flower/Seed head destruction
503	Plant leaves, stems, inner bark, or roots chewed up
504	Removal of plant fluids (sap and liquid cell contents)
505	Stored Grain damage
506	Poisonous if eaten livestock

PART D – COMMERCIAL GRAIN GRADING

1. Test: 2 Problems (2 different crops will be presented)
2. Time: 45 minutes (Commercial Grain Grading and Entomology are one section)
3. Value 150 points
4. The commercial grading of grains will be based upon the standards of the Consumer and Marketing Service, Grain Division of the U.S. Department of Agriculture, as set forth in the Official Grain Standards of the United States Handbook – The latest handbook available on January 1 each year at (<http://www.usda.gov/gipsa>) will be used. Handbooks will be provided at the contest.
5. The grading will consist of:

Class	Subclass
<u>WHEAT</u>	
Hard Red Winter	
Hard Red Spring	Red Spring Wheat Dark Northern Spring and Northern Spring Wheat

CORN

White
Yellow
Mixed

OATS

White

RYE

MALTED BARLEY

Two-rowed

Two problems, winter hard red winter and/or hard red spring wheat; oats; rye; malt barley and corn will be used to make up the grading phase of the contest.

No actual grain samples will be worked. Master sheets listing grading factors will be furnished to each contestant.

6. Only the following special grades may be used in the contest:
 Wheat: smutty, light smutty, garlicky, treated, ergoty
 Oats: heavy, extra heavy, thin, smutty, garlicky, ergoty, bleached, bright
 Rye: ergoty, light smutty*, plump, smutty, light garlicky, weevily
 Corn: flint, flint and dent, waxy*
 Malt Barley
7. Grading will be done on two problems from card factors only. Approximately five minutes will be allowed for each problem.
8. The contestant must indicate with an "X" in the proper circle on the score sheet the correct grade, subclass, class, and factors which apply for each problem. In addition, information will be furnished on the card whereby the contestant will be expected to determine percent dockage and special grade where applicable.
9. Grading factors: A reason why a grain goes down in grade. A grain which grades No. 1 has no grading factors and need be given none. A grain grading No. 2 or lower must have a factor or factors which bring it down. Only the factors which bring it down to the lowest grade should be marked.
10. Official rules for scoring contestant's papers on commercial grain grading.

HARD RED SPRING WHEAT

Subclass	25 points.	wrong.....	0
*Grade - right	30 points.	1 off 20 points	
2 off	10 points.	3 off.....	0
**Determining factors	20 points		
one factor: 1 right	20 points.	1 wrong.....	0
two factors: 2 right	20 points.	2 wrong.....	0
1 right	16 points		
three factors: 3 right	20 points.	3 wrong.....	0
2 right	16 points		
1 right	8 points		
four factors: 4 right	20 points.	4 wrong.....	0
3 right	16 points		
2 right	12 points		
1 right			
Over 4 factors cut	10 points		

OATS, CORN, AND RYE

Class. 15 points

*Grade - right. 30 points

1 off20 points

2 off.10 points

3 off. 0 points

**Determining factors. 30 points

one factor: 1 right 30 points. . . . 1 wrong. 0

two factors: 2 right 30 points. . . . 2 wrong. 0

three factors: 1 right 24 points
3 right 30 points. . . . 3 wrong. 0

2 right 20 points
1 right 10 points

four factors: 4 right 30 points. . . . 4 wrong. 0

3 right 22 points

2 right 15 points

1 right 8 points

MALT BARLEY

Grade30 points1 off 20 points

.....2 off 10 points

.....3 off 0 points

**Determining factors45 points

One factor: 1 right 45 points

Two factors 2 right 45 points

1 right 30 points

Three factors: 3 right 45 points

2 right 30 points

1 right 15 points

Four factors: 4 right 45 points

3 right 35 points

2 right 20 points

1 right 10 points

* If special grade is omitted, cut 5 points. If wrong special grade is included, cut 5 points.

** When determining factors are given and only one is actual, score as for two factors. When three determining factors are given and only two are actual, score as for three.

*** Cut 10 points on all factors over four.

COMMERCIAL GRAIN GRADING SCORE SHEET

Contestant No. _____

Total Score _____

Indicate your answer by an X in the proper bracket HARD

RED WINTER WHEAT

Grade	Subclass	Factors	
U.S. No. 1 []	[]	Minimum test weight per bushel []	
U.S. No. 2 []		Damaged kernels	Total damaged kernels []
			Heat-damaged kernels []
U.S. No. 3 []	[]		
U.S. No. 4 []		Foreign Materials []	
U.S. No. 5 []	[]	Wheat of other classes	Total []
			Contrasting Classes []
U.S. Sample Grade []			
	Special Grades	Shrunken and broken kernels []	
		Defects (Total) []	
Smutty []		Dockage _____%	
Light Smutty []			
Garlicky []			
Ergoty []		Does not meet requirements for any of the grades from U.S. No. 1 to U.S. No. 5, inclusive []	
Treated []			

COMMERCIAL GRAIN GRADING SCORE SHEET

Contestant No. _____

Total Score _____

Indicate your answer by an X in the proper bracket

HARD RED SPRING WHEAT

Grade	Subclass	Factors	
U.S. No. 1 []	Dark Northern Spring Wheat []	Minimum test weight per bushel []	
U.S. No. 2 []		Damaged kernels	Total damaged kernels []
U.S. No. 3 []	Northern Spring Wheat []		Heat-damaged kernels []
U.S. No. 4 []		Foreign Material []	
		Shrunken and broken kernels []	
U.S. No. 5 []	Red Spring Wheat []	Total of above []	
U.S. Sample grade []		Wheat of other classes	Contrasting classes []
	Special Grades	Defects (Total) []	
Smutty []			
Light Smutty []		Dockage _____%	
Garlicky []			
Ergoty []			
Treated []			

COMMERCIAL GRAIN GRADING SCORE SHEET

Contestant No. _____

Total Score _____

Indicate your answer by an X in the proper brackets

CORN

Grade	Class	Factors
U.S. No. 1 []	Yellow Corn []	Minimum test weight per bushel []
U.S. No. 2 []		Moisture []
U.S. No. 3 []	White Corn []	Broken corn and Foreign Material []
U.S. No. 4 []		
U.S. No. 5 []	Mixed Corn []	Damaged Total [] _____ Kernels Heat-damaged kernels []
U.S. Sample Grade []		
	Special Grade	Does not meet requirements for any of the grades from U.S. No. 1 to U.S. No. 5, inclusive []
Flint []		
Waxy []		
Flint and Dent []		

COMMERCIAL GRAIN GRADING SCORE SHEET

Contestant No. _____

Total Score _____

Indicate your answer by an X in the proper brackets

OATS

Grade	Special Grades	Factors
U.S. No. 1 []	Bright []	Test Weight per Bushel []
U.S. No. 2 []	Heavy []	Sound Cultivated Oats []
U.S. No. 3 []	Extra Heavy []	Heat-damaged Kernels []
U.S. No. 4 []	Thin []	Foreign Material []
U.S. Sample Grade []	Smutty []	Wild Oats []
	Ergoty []	Oats of Other Colors []
	Garlicky []	Slightly Weathered Oats []
	Bleached []	Badly Stained or Materially Weathered Oats []
		Does not meet requirements for any of the grades from U.S. No. 1 to U.S. No. 4, inclusive. []

COMMERCIAL GRAIN GRADING SCORE SHEET

Contestant No. _____

Total Score _____

Indicate your answer by an X in the proper brackets

RYE

Grade	Special Grades		Factors
U.S. No. 1 []	Plump []	Damaged Kernels	Total []
U.S. No. 2 []	Smutty []		Heat-damaged []
U.S. No. 3 []	Light Garlicky []	Foreign Material	Total []
U.S. No. 4 []	Garlicky []		Other than Wheat []
U.S. Sample Grade []	Ergotty []	Minimum test weight per bushel []	
Dockage %	Light Smutty []	Thin Rye	[]
		Does not meet requirements for any of the grades from U.S. No. 1 to U.S. No. 4, inclusive.	[]

COMMERCIAL GRAIN GRADING SCORE SHEET

Contestant No. _____

Total Score _____

Indicate your answer by an X in the proper brackets.

TWO-ROWED MALTING BARLEY

Grade	Factors
U.S. No. 1 <input type="checkbox"/>	Test Weight Per Bushel <input type="checkbox"/>
U.S. No. 2 <input type="checkbox"/>	Suitable Mal ting Types <input type="checkbox"/>
U.S. No. 3 <input type="checkbox"/>	Sound Barley <input type="checkbox"/>
U.S. No. 4 <input type="checkbox"/>	Wild Oats <input type="checkbox"/>
Does not meet any of the requirements for any of the above grades. <input type="checkbox"/>	Foreign Material <input type="checkbox"/>
	Skinned Or Broken Kernels <input type="checkbox"/>
	Thin Barley <input type="checkbox"/>
	Frost Damaged Kernels <input type="checkbox"/>
	Mold Damaged Kernels <input type="checkbox"/>
	Heat Damaged Kernels <input type="checkbox"/>
	Garlicky <input type="checkbox"/>
	Ergoty <input type="checkbox"/>
	Smutty <input type="checkbox"/>
	Infested <input type="checkbox"/>

PART E – PLANT & SEED IDENTIFICATION

1. Test: 50 questions (specimens)
2. Time: 45 minutes (Plant & Seed Id and Forage Judging are one section)
3. Value 200 points

4. Identification of 50 weed and/or crop plants and/or seeds.
5. Plants may be presented in any stage of growth following emergence. They may be in the form of live plants or dried mounts. If mounts are used photos of live plants will be included to help with identification. Any live material will not have photos included.
6. Below are the lists of weeds and crops that will be used for testing.

Weeds List

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

ID#	Weed Name	Form	Botanical Name
100	Annual prickly poppy	Plant and seed	<i>Argemone albiflora</i>
101	Barnyardgrass	Plant and seed	<i>Echinochloa crus-galli</i>
102	Black nightshade	Plant and seed	<i>Solanum nigrum</i> or <i>Solanum ptycanthum</i>
103	Blue lettuce	Plant and seed	<i>Lactuca tatarica</i>
104	Blue mustard	Plant and seed	<i>Chorispora tenella</i>
105	Broadleaf plantain	Plant and seed	<i>Plantago major</i>
106	Buckhorn plantain	Plant and seed	<i>Plantago lanceolata</i>
107	Buffalobur	Plant and seed	<i>Solanum rostratum</i>
108	Bull thistle*	Plant and seed	<i>Cirsium vulgare</i>
109	Canada thistle*	Plant and seed	<i>Cirsium arvense</i>
110	Common burdock	Plant and seed	<i>Arctium minus</i>
111	Common chickweed	Plant and seed	<i>Stellaria media</i>
112	Common cocklebur	Plant and seed as bur	<i>Xanthium strumarium</i>
113	Common lambsquarter	Plant and seed	<i>Chenopodium album</i>
114	Common mallow	Plant and seed	<i>Malva neglectga</i>
115	Common milkweed	Plant and seed	<i>Asclepias syriaca</i>
116	Common purslane	Plant and seed	<i>Portulaca oleracea</i>
117	Common ragweed*	Plant and seed	<i>Ambrosia artemisiifolia</i>
118	Common salsify	Plant and seed	<i>Tragopogon porrifolius</i>
119	Common sunflower	Plant and seed	<i>Helianthus annuus</i>
120	Common yarrow	Plant and seed	<i>Achillea millefolium</i>
121	Crabgrass	Plant and seed	<i>Digitaria spp.</i>
122	Curly dock*	Plant and seed	<i>Rumex crispus</i>
123	Curlycup gumweed	Plant and seed	<i>Grindelia squarrosa</i>
124	Dandelion	Plant and seed	<i>Taraxacum officinale</i>
125	Dalmation toadflax	Plant and seed	<i>Linaria dalmatica</i>
126	Deathcamas	Plant and seed	<i>Toxicoscordion venenosum</i>
127	Downy brome	Plant	<i>Bromus tectorum L.</i>
128	Field bindweed*	Plant and seed	<i>Convolvulus arvensis</i>
129	Field dodder*	Plant and seed	<i>Cuscuta spp.</i>
130	Field pennycress	Plant and seed	<i>Thlaspi arvense</i>
131	Field sandbur	Plant and seed	<i>Cenchrus incertus</i>
132	Foxtail barley	Plant and seed	<i>Hordeum jubatum</i>
133	Foxtail, green	Plant and seed	<i>Setaria viridis</i>
134	Geyer larkspur	Plant and seed	<i>Delphinium geyeri</i>
135	Giant ragweed*	Plant and seed	<i>Ambrosia trifida</i>
136	Halogeton	Plant and seed	<i>Halogeton glomeratus</i>
137	Horsenettle*	Plant and seed	<i>Solanum carolinense</i>
138	Horseweed* (marestail)	plant	<i>Conyza Canadensis</i>
139	Jimsonweed	Plant and seed	<i>Datura stramonium</i>
140	Johnsongrass*	Plant and seed	<i>Sorghum halpense</i>
141	Jointed goatgrass	Plant and seed	<i>Aegilops cylindrica L.</i>
142	Knapweed, Russian*	Plant and seed	<i>Centaurea repens</i>
143	Kochia*	Plant and seed	<i>Kochia scoparia</i>
144	Leafy spurge*	Plant and seed	<i>Euphorbia esula</i>
145	Lupine	Plant and seed	<i>Lupinus spp.</i>
146	Marshelder	Plant and seed	<i>Iva annua</i>
147	Musk thistle	Plant and seed	<i>Carduus nutans</i>
148	Nutsedge*	Plant and seed as nutlet	<i>Cyperus spp.</i>
149	Oxeye daisy	Plant and seed	<i>Leucanthemum vulgare</i>

Weeds List

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

ID#	Weed Name	Form	Botanical Name
150	Perennial pepperweed	Plant and seed	<i>Lepidium latifolium</i>
151	Plumeless thistle	Plant and seed	<i>Carduus acanthoides</i>
152	Prickly lettuce	Plant and seed	<i>Lactuca serriola</i>
153	Prostrate knotweed	Plant and seed	<i>Polygonum aviculare</i>
154	Puncturevine*	Plant and seed	<i>Tribulus terrestris</i>
155	Quackgrass*	Plant and seed	<i>Agropyron repens</i>
156	Redroot pigweed	Plant and seed	<i>Amaranthus retroflexus</i>
157	Russian thistle	Plant and seed	<i>Salsola pestifer</i>
158	Seaside arrowgrass	Plant and seed	<i>Triglochin maritima</i>
159	Scotch thistle	Plant and seed	<i>Onopordum acanthium</i>
160	Sheep sorrel	Plant and seed	<i>Rumex acetosella</i>
161	Shepardspurse	Plant and seed	<i>Capsella bursa-pastoris</i>
162	Skeletonleaf bursage	Plant and seed	<i>Ambrosia tomentosa</i>
163	Skeletonweed	Plant and seed	<i>Chondrilla juncea</i>
164	Sowthistle*	Plant and seed	<i>Sonchus spp.</i>
165	Tall larkspur	Plant and seed	<i>Delphinium occidentale</i>
166	Tansy mustard	Plant and seed	<i>Descurainia pinnata</i>
167	Tumble mustard	Plant and seed	<i>Sisymbrium altissimum</i>
168	Velvetleaf*	Plant and seed	<i>Abutilon theophrasti</i>
169	Western waterhemlock	Plant and seed	<i>Cicuta douglasii</i>
170	Western sticktight	Plant and seed	<i>Lappula occidentalis</i>
171	Wild buckwheat	Plant and seed	<i>Polygonum convolvulus</i>
172	Wild mustard	Plant and seed	<i>Brassica kaber</i>
173	Wild oats	Plant	<i>Avena sativa</i>
174	Wild onion/garlic*	Plant and seed	<i>Allium spp.</i>
175	Wild proso millet	Plant and seed	<i>Panicum miliaceum</i>
176	Woody aster	Plant and seed	<i>Xylorhiza Nutt.</i>
177	Yellow toadflax	Plant and seed	<i>Linaria vulgaris</i>

Crops List

ID#	Crop Name	Form	Botanical Name
200	Alfalfa	Plant and seed	<i>Medicago sativa</i>
201	Barley	Plant and seed	<i>Hordeum vulgare</i>
202	Bean (dry)	Plant	<i>Phaseolus vulgaris</i>
203	Birdsfoot trefoil	Plant and seed	<i>Lotus corniculatus L.</i>
204	Black bean	Seed	<i>Phaseolus vulgaris</i>
205	Blue grama	Plant and seed	<i>Bouteloua gracilis</i>
206	Buffalograss	Plant and seed	<i>Bouteloua dactyloides</i>
207	Canola	Plant and seed	<i>Brassica napus</i>
208	Chickpea/Garbanzo	Plant and seed	<i>Cicer arietinum</i>
209	Cicer Milkvetch	Plant and seed	<i>Astragalus cicer L.</i>
210	Corn	Plant and seed	<i>Zea mays</i>
211	Dent Corn	Seed	<i>Zea mays</i>
212	Durum wheat	Seed	<i>Triticum turgidum</i>
213	Flax	Plant and seed	<i>Linum usitatissimum</i>
214	Hops	Plant	<i>Humulus lupulus</i>
215	Kentucky bluegrass	Plant and seed	<i>Poa pratensis</i>
216	Lentil	Plant and seed	<i>Lens culinaris</i>
217	Lima bean	Seed	<i>Phaseolus lunatus</i>
218	Oats	Plant and seed	<i>Avena sativa</i>
219	Orchardgrass	Plant and seed	<i>Dactylis glomerata</i>
220	Peas	Plant and seed	<i>Pisum sativum</i>
221	Pinto bean	Seed	<i>Phaseolus vulgaris</i>
222	Popcorn	Seed	<i>Zea mays</i>
223	Potato	Plant	<i>Solanum tuberosum</i>
224	Red bean	Seed	<i>Phaseolus vulgaris</i>
225	Red clover	Plant and seed	<i>Trifolium pretense</i>
226	Red Wheat	Seed	<i>Triticum aestivum</i>
227	Rye	Plant and seed	<i>Secale cereal</i>
228	Safflower	Plant and seed	<i>Carthamus tinctorius</i>
229	Sainfoin	Plant and seed	<i>Onobrychis viciifolia</i>
230	Sorghum	Plant and seed	<i>Sorghum bicolor</i>
231	Soybean	Plant and seed	<i>Glycine max</i>
232	Sudangrass	Plant and seed	<i>Sorghum bicolor</i>
233	Sugar beets	Plant and seed	<i>Beta vulgaris</i>
234	Sunflower	Plant and seed	<i>Helianthus annuus</i>
235	Sweet corn	Seed	<i>Zea mays</i>
236	Sweetclover	Plant and seed	<i>Melilotus albus</i>
237	Tall fescue	Plant and seed	<i>Festuca arundinacea</i>
238	Timothy	Plant and seed	<i>Phleum pretense</i>
239	Western wheatgrass	Plant and seed	<i>Pascopyrum smithii</i>
240	Wheat	Plant	<i>Triticum aestivum</i>
241	White bean	Seed	<i>Phaseolus vulgaris</i>
242	White clover	Plant and seed	<i>Trifolium repens</i>
243	White wheat	Seed	<i>Triticum aestivum</i>

PART F – SOILS & LAND JUDGING

Time: 45 minutes

Value: 300 points

Test:

1. Determination of land capability class.

Land Classes I-VIII

2. Fertilizer and Soil Amendments.

Description of contest

The contestant will be supplied with the following materials for use during the contest.

1. A sample of the surface soil, which must be hand-textured. This information will be used to select the surface textural class and the surface textural group in Part 1 of the test.
2. A textural triangle, which will be used to determine the texture of the subsoil from the data supplied on the scorecard for Part 1.
3. Two views of the soil to be judged in Part 1, which will be used to help determine Land Class and Vegetative Treatment.
4. A copy of the Guide to Wyoming Fertilizer Recommendations, which will be used with data in Part 2 of the exam, to determine fertilizer recommendations.
5. A two-page scorecard for entering the contestant's answers.

Training procedures

Introduction

The following suggested procedures are intended to supplement the training procedures already in use by Wyoming vocational agriculture instructors. They are provided as an outline to be followed as the instructor feels would most benefit and facilitate his/her training program.

Five of the major areas of the Wyoming FFA Agronomy CDE are covered.

They include:

1. Forage Judging
2. Commercial Grain Grading
3. Plant and Seed Identification
4. Soils Judging
5. Entomology

Suggested Procedure for Teaching

FORAGE JUDGING

1. Students should be well trained in plant identification in order to identify injurious and noninjurious plants.
2. Create an interest in forage judging.
 - a. Importance of high quality forages.
 - b. Comparison between livestock judging and forage judging.
 - c. Importance as part of agronomy contest.
3. Preliminary steps:
 - a. Discuss forages to be judged.
 - b. Review classification of weed plants.
 - c. Learn descriptive terms.
 - d. Learn to use evaluation sheets.
 - e. Use Judging forms.
 - i. Place example on board.
 - ii. Let students practice giving reasons.
4. Start judging:
 - a. Compare four (4) samples by general observation.
 - b. Since no handling is allowed, examine each as closely as possible.
 - c. Take notes on similarities and differences.
 - d. A factor may be present in all samples but in varying degrees.
 - e. After each sample has been carefully examined, an overall appraisal of four samples should be made.
 - f. Make final placing.
5. Give a final forage judging test using the same types of samples that will be used during the state contest.

Resources:

<http://www.wyoextension.org/agpubs/pubs/B1088.pdf>

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

Suggested Procedure for Teaching COMMERCIAL GRAIN GRADING

1. Create an interest in grain grading.
 - a. Show the class the value of grain grading for actual marketing of grain and for an agronomy contest.
 - b. The farmer can determine the value of his own grains from market quotations and it can aid in using production and handling methods suitable for a higher commercial grade.
2. Discuss the market classes of grain that are to be graded so that the student will recognize them.
3. Discuss the parts of the Official Grain Standards Handbook that pertain to the classes to be graded until the students are familiar with this part.
4. Start grading of grain in the following manner:
 - a. Write what would be found on a sample card on the board and show how to determine class, grade and grading factors and the relative values of each.
 - b. Give each student a sample sheet of factors of a grain sample and explain how to determine class, grade and grading factors and relative values of each.
5. Give a final commercial grain grading contest. Use 10 samples and conduct the test in a similar manner to the contest to be conducted at the state level.

Resources:

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

<https://www.gipsa.usda.gov/fgis/publication/ref/primer.pdf>

<http://www.agri.ohio.gov/divs/plant/grain/plnt-gfs-FeedExemptBuyersGrainGradingStudyGuide.pdf>

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.

Suggested Procedure for Teaching PLANT AND SEED IDENTIFICATION

1. Create an interest in plant and seed identification.
 - a. Pass around a few samples of common seeds the students do not know to arouse their interest.
 - b. Show the class the purposes of seed identification.
 - i. To be able to recognize mixtures and to determine the kind and quantity of seeds in mixtures.
 - ii. To recognize and determine the seriousness of weed or plant seeds in planting seed.
 - iii. To avoid planting improper seed.
 - iv. To enable recognition of poisonous and harmful plants.
 - c. Show the class the importance of seed and plant identification in the state agronomy contest.
2. Aids in identification:
 - a. Have students bring in designated plants and seeds from their homes.
 - i. This gives the students a chance to learn about plants in their natural habitat.
 - ii. This gives the students a chance to see a plant and seed at different sizes, shapes and conditions.
 - b. Plants and seeds that are needed can be obtained from the University for a small fee.
 - i. Not getting a plant or seed from the University, but finding and mounting them one's self helps an FFA chapter.
 - ii. Saves the chapter money.
 - iii. Mounting of plants and seeds could also be a good way for an FFA chapter to make money by selling these samples to less industrious chapters.
3. Go over the list of seeds with the class so that the students will be able to recognize them and pronounce their names.
4. Conduct a detailed study of seeds with special emphasis given to the seeds with similar markings.
 - a. Explain the difference between similar seeds.
 - b. Make drawings of the more difficult to illustrate variations.
 - c. Have the students study small seeds under a magnifying glass. Small characteristics can usually be seen with the naked eye after they have once been found.
5. Have students study the seed samples individually.

6. Give an identification test with seeds poured out in plates.
 - a. Grade tests with samples still out so that the students can check their mistakes.
 - b. Have each student make a list of seeds incorrectly identified so that he/she may study them.
7. Tests should emphasize the seeds the students are having the most trouble with.
8. Crop and weed seeds and plants need to be studied in their separate divisions first, then gradually combined.
9. Give a final identification test, including all the samples and duplication of some. Check papers for correct spelling and identification.

Resources:

Weeds of the West, University of Wyoming Extension, by Tom D. Whitson (Editor)

UW extension publication # WSWS-1

<http://www.wyoextension.org/agpubs/pubs/B1227.pdf>

Flash cards for both seeds and plants are available through Wards Natural Science Establishment wardsci.com.

<http://plants.usda.gov/>

http://www.ipm.ucdavis.edu/PMG/weeds_multi.html

<http://wssa.net/weed/weed-identification/>

Weed Seeds of the Great Plains, University Press of Kansas

<http://www.oardc.ohio-state.edu/seedid/>

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

A Field Guide to Wyoming Grasses, University of Wyoming, Quentin D. Skinner.

UW extension publication # FGWG-1

Suggested Procedure for Teaching

SOILS JUDGING

1. Students should be familiar with the material in Chapter 11 of Our Soils and Their Management (Donahue, Follett and Tulloch, 1990, Interstate and in Publishers, Inc., Danville, Illinois) the Guide to Wyoming Fertilizer Recommendations.
2. Students should recognize the appropriate agricultural or residential uses for the soil conditions presented which will protect the environments as well as provide profit.
3. Create an interest in soil judging.
 - a. Identify aspects used to classify land use.
 - b. Learn the field method. (Hand texturing) for determining textural class, and be able to use the textural triangle with laboratory data to determine textural class.
 - c. Use laboratory data in conjunction with the Guide to Wyoming Fertilizer Recommendations to make a fertilizer recommendation.
4. Preliminary Steps
 - a. Discuss soil textural properties and their effects.
 - b. Learn textural terms.
 - c. Learn to hand texture.
 - d. Learn to use the textural triangle.
 - e. Learn factors which affect land capability class.
 - f. Learn land classifications for the contest.
 - g. Practice determining land classification.
 - h. Review contents of the fertilizer guide.
 - i. Practice making recommendations.

Resources:

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

<http://www.wyoextension.org/agpubs/pubs/B996.pdf>

Suggested Procedure for Teaching

ENTOMOLOGY

The information necessary to be successful on the test is found by reviewing the study slides and accompanying information sheets of each of the insects and related arthropods that may appear on the test. More general information on insect biology, classification, and management is found in the UW CES bulletin titled "Insect Resource Manual" by Michael Brewer. This resource manual is helpful in learning how these insects are related to each other (their life cycle, feeding habits, and body structure) and what type of management strategies are available to control insects. Additional information includes listings of reference books, suppliers of entomology equipment, guides on the collection and preservation of insect, and glossary of entomological terms. The study slides, information sheets, and resource manual provide sufficient information to allow a student to excel on the entomology section of the contest. For the advanced student who wishes to learn more, the student should be directed to the reference books listed in the "Insect Resource Manuals." The books written by R. Pfadt and L. Pedigo are particularly strong in plant protection entomology.

Internet Resources:

<http://www.wyoextension.org/agpubs/pubs/MP76r.pdf>

[Basic guide to insects most important to plant production.](#)

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

[Tutorial on insect mouthparts to determine what kind of food it eats by its anatomy.](#)

https://projects.ncsu.edu/cals/course/ent425/library/labs/external_anatomy/anatomy_mouthparts.html

Suggested Procedure for Teaching
AGRONOMY 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.

Resources:

<http://www.wyoextension.org/agpubs/pubs/B-1293.pdf>

<http://ohioline.osu.edu/factsheet/HYG-1133>

<http://www.extension.iastate.edu/Publications/SR48.html>

<http://gaps.cornell.edu>