

# **2009 IOWA FFA AGRONOMY MANAGEMENT CAREER DEVELOPMENT EVENT**

This is the official Iowa FFA Agronomy Management Career Development Event for high school agriculture students who are active FFA members in the state of Iowa. It will be held in Agronomy Hall on the Iowa State University campus, Ames.

## **Event Host**

Agronomy Department – Crop, Soil, and Environmental Sciences  
Iowa State University  
Agronomy Hall  
Ames, Iowa 50011-1010  
(515) 294-3846

## **Iowa FFA Contact**

Scott Johnson, East Sac  
Agronomy Management CDE Chairperson

## **Event Objectives**

1. To motivate high school students to learn and understand how to grow and manage crops in Iowa for efficient, profitable, and sustainable production.
2. To develop agricultural science skills in crop culture, production, management, marketing, and utilization.
3. To develop the ability to gather information and solve problems and make decisions related to crops, soils, and the environment.
4. To gain knowledge about:
  - a. quality factors in evaluating hay, silage, and grains;
  - b. identification of seed, seedling, and mature plants of important crop and weed species in Iowa; and
  - c. control of diseases, insects, and weeds common to Iowa crops.
5. To obtain knowledge and skills in crops that will be helpful in future careers related to crop, soil, and environmental sciences.

## **General Information**

1. Each school may enter a team composed of three or four participants, with the three highest scores counting for the team score in each event and total overall. Team members must all be from the same chapter.
2. Each participant will participate in all phases of the event.

3. Participants shall report to the chair of the event between 8:00 a.m. and 8:40 a.m. on event day. Registration location will be provided prior to event day. Parking is available at the Memorial Union or Lot 29 behind the Molecular Biology Building in the NW corner of the Iowa State University campus.
4. Answer sheets, worksheets and other written materials will be furnished for each event phase.
5. The event consists of four events - three individual events and a team event. The three individual events are 1) a written examination, 2) crops judging, and 3) plant, seed, and insect identification. Participants will be given 40 minutes for each of the individual events. Thirty (30) minutes will be given for the team event.

## **Event Activities**

### **I. Crops Judging (250 points)**

Scoring of hay, silage, and seed judging will be done with the Hormel system commonly used in livestock judging. The top score for correctly placing the four samples in a class will be 50 points with deductions coming from errors in placing. The official judge(s) will assign numerical scores to indicate the differences between pairs in the class. Each class will have three pairs, a top, middle, and bottom. A numerical score (cut) will be assigned to each pair according to the difficulty of placement of the samples. Cuts will be larger for samples that should easily be distinguished from each other and smaller for more difficult placings.

#### **A. Hay Judging**

A four-sample class of alfalfa hay will be judged on the basis of four quality factors. Contestants will use a 100-point system to score the samples using the following quality factors. An example of the hay-judging scorecard is attached.

Leafiness in legume hay is very important as most of the nutritive value is found in leaves. The relationships between leaves and protein, mineral and vitamin content, as well as digestibility, are highly correlated. 0-40 points. 20 points for average leafiness; more for very leafy; less where fewer than average leaves are present.

Condition is an indication of hay quality reflecting how the hay was handled during harvesting and storage. The hay should be free of mold, dust, and other undesirable traits, with no evidence of heating. Hay should have good aroma, and not smell sour, moldy, or have other objectionable odors. 0-30 points. Score 15 for average hay conditions; higher for much better than average; lower for excessive leaf shatter, bad odor, etc.

Foreign material is undesirable for feeding purposes and may be harmful. Weeds in hay are unpalatable, low in nutritive value, and a source of weed seeds. 0-15 points. Discount 2 points for each different kind of weed, more points if weeds are in abundance, discount 1 point for old stems.

Color in legume hay is an indication of Vitamin A content and conditions under which the forage was harvested and cured. Hay with dark green color will have higher Vitamin A potency. 0-15 points. Score 5 points for average color; more for very green; fewer for rain damaged or sun-bleached hay.

## Placing the Class

Contestants will rank the class of alfalfa hay for overall final placing based on the points calculated for each sample using the scorecard. For example if the scores were 72, 85, 64, and 91 for samples 1, 2, 3, and 4, respectively. The class would be placed 4-2-1-3 and the contestant will enter 4 in the box for 1<sup>st</sup> place, 2 in the box for 2<sup>nd</sup> place, and so forth.

## **B. Silage Judging**

Four corn silage samples will be evaluated and ranked from highest to lowest quality. Contestants will use a 100-point system to score corn silage samples using the following quality factors and criteria. An example of the silage-judging scorecard is attached.

Grain content in silage reflects the available energy and is the most important factor in high quality silage. Silage with no grain will have reduced feeding value. 0-50 Score 25 points for an average amount of grain; less than 25 for poor grain content; more for exceptional grain content.

Color of high-quality corn silage will have an olive green color, whereas, a dark brown to black color indicates excessive heating and faulty storage conditions. 0-25 points. Score 20-25 points for olive green, 10-20 points for light green or greenish-brown, and 0-10 points for brown or black.

Aroma may be best described as a yeasty or pleasant, fermentable odor--a characteristic that is hard to describe. In contrast, butyric acid, ammonia, or musty odors are undesirable and indicate considerable loss in feed value and poor fermentation. 0-25 points. Score 15-25 points for desirable odors and 0-15 for unpleasant odors.

## Placing the Class

Contestants will rank the silage for overall final placing based on the points calculated for each sample using the scorecard. For example if the scores were 68, 82, 84, and 94 for samples 1, 2, 3, and 4, respectively. The class would be placed 4-3-2-1 and the contestant will enter 4 in the box for 1<sup>st</sup> place, 3 in the box for 2<sup>nd</sup> place, and so forth.

## **C. Seed Judging**

Good seed is an important element in crop production. State seed laws require seed to be tested and labeled for germination and purity before they are offered for sale. Nevertheless, some seed may be purchased from neighbors who have not had the seed tested. An evaluation of the seed may help fix the selling price, prevent hazardous weed seed from being planted on otherwise clean land, and/or encourage the use of quality seed.

Various factors are considered in evaluating seed quality. The value of each factor will differ in comparative importance. For example, seed of a primary noxious weed is more serious than the presence of inert materials. The value deduction assigned to each factor has been listed below relative to the factor's importance. One sample in a class of four samples may contain several minor factors while another sample may contain only one factor that is more serious. A sample with the least amount of defect points is the best sample. To determine the final score for a sample subtract the defect points from 100. Place the class of four samples based on the final score for each sample.

## Seed Purity Factors

Mixtures of varieties and other crops - Mixtures are serious in many crops because of the differences in adaptation, maturity, disease resistance, and yielding ability. Some varieties are so similar in appearance that seed differences cannot be distinguished. Mixtures of other crop seed are often more serious than other varieties.

Inert Materials - Stems, chaff, stones, and soil particles are considered inert material. A sample containing quantities of inert materials will contain less seed and it is often necessary to use a higher rate of seeding in order to obtain good stands. In some instances, the inert material can interfere with seeding operations.

Weed Seed - Weeds are classified as to their seriousness by the Iowa Seed Law. The noxious weeds of Iowa are the most serious weed pests in the state. *Only weed seed required in the identification list will be added to seed judging samples.*

## Evaluation Factors

<b>Criteria</b>	<b>Oat</b>	<b>Soybean</b>
Presence of weed seed		
Primary noxious weeds	-40	-40
Secondary noxious weeds	-25	-25
Common weeds	-10	-10
Presence of other variety and/or class	-10	-20
Presence of other crops		-25
Rye	-20	
Wheat	-10	
Barley	-10	
Presence of inert material	-5	-5
Presence of weathered seed	-5	-5
Presence of sprouted seed	-5	-5
Presence of shriveled or immature seed	-5	-10
Presence of lightweight seed	-5	
Presence of hulled seed (cracked, broken)	-5	
Presence of cracked seed and injured seed coat		-10
Presence of seed lacking luster	-5	
Presence of diseased or stained seed	-5	-5
Presence of insect damaged seed	-5	

## Placing and Reasons

Four-sample classes of oat and soybean will be judged on the basis of a total of eight evaluation factors among the four samples. Base sample size will be one-fourth cup of oat or one-third cup of soybean. The contestant will use the enclosed score card to evaluate each of the evaluation factors. After examining and identifying the eight factors (defects) found in the four-sample class, the contestant will then have a basis for placing the class. Each class is given a value of 50 points for correct placing. *It is important for the contestant to realize that a total of only eight (8) factors will be used in each four-sample class and that two factors per sample may not necessarily be used. Three or more seed of another crop variety or weed or must be present to be a factor. At least three pieces of a contaminant must be present to be a factor.*

For illustration, a four-sample class of oat has the following eight factors within the four samples

Sample number	Factors
1	bull thistle (primary noxious), stones
2	barley, pigweed
3	sprouted kernels, straw and chaff
4	velvetleaf (secondary noxious), hulled oats

## Oat Seed Judging Estimating The Value of Planting Seed

Contestant No. \_\_\_\_\_

Print Name: \_\_\_\_\_

		Final Placing			
		1st	2nd	3rd	4th
Sample number:		3	2	4	1
Name of Class: <b>OAT</b>					
Evaluation Factors		Sample Number			
		1	2	3	4
Weed Seed	Primary Noxious (-40)	-40			
	Secondary Noxious (-25)				-25
	Common (-10)		-10		
Mixtures	Other varieties (-10)				
	Other Crops Seed				
	Rye (-20)				
	Wheat (-10)				
Inert	Barley (-10)		-10		
	Sticks, Stems, etc. (-5)	-5		-5	
Soundness	Weathered (-5)				
	Sprouted (-5)			-5	
	Immature (-5)				
	Lightweight (-5)				
	Dehulled, Cracked and Broken (-5)				-5
	Lacks Luster (-5)				
	Disease (-5)				
	Insect Damage (-5)				
Total score (100 points – deductions):		55	80	90	70

**D. Corn for Livestock Feed and Soybeans for Marketing (50 points)**

Contestants will have 25 samples of corn and soybean to evaluate, each possessing only one negative factor or no negative factors per sample. Negative factors reduce the value of corn for livestock feed and of soybean for marketing. Among the factors which will be used in the contest are heat damage, frost damage, sprouted seed, treated seed, inseparable stones, immature grain or seed, other crop, contrasting corn classes, diseased, contamination (rodent/bird), contamination (weed seed), contamination (cob), inert, and mechanical damage. Some factors may be used twice while other factors may not be used in any of the 25 samples. Examples of the corn and soybean market-grading scorecards are attached. Each correctly identified negative factor in the 25 samples will be worth 2 points each in scoring.

## II. Seed, Plant, and Insect Identification (250 points)

Contestants will identify 50 crop and weed seeds, plants, and insect pests from the following list. Crop and weed species for plant identification are followed by the letter p. Species for seed identification are noted with the letter s. For insect identification, the letters a, l, and n denote adult, larval, and nymph stages, respectively. Pictures will be used for the insect pests. Plants will be in the flowering stage when possible. Each correctly identified plant and seed sample and insect will be worth 5 points in scoring. An example of the identification answer sheet is attached.

### Crops

barley p s  
corn p  
dent corn s  
pop corn s  
grain sorghum p s  
oat p s  
rye p s  
wheat p  
hard red winter wheat s  
soft red winter wheat s  
  
soybean p  
food-grade soybean s<sup>1</sup>  
commercial-grade soybean s<sup>1</sup>  
  
alfalfa p s  
birdsfoot trefoil p s  
crownvetch p  
red clover p s  
sweetclover p  
white clover p  
  
orchardgrass p s  
reed canarygrass p s  
smooth bromegrass p s  
tall fescue p  
timothy p  
switchgrass p s

### Primary Noxious Weeds<sup>2, 3</sup>

bull thistle p s  
field bindweed p s  
Canada thistle p s  
horsenettle p  
musk thistle p  
quackgrass p

### Secondary Noxious Weeds<sup>4</sup>

cocklebur p s  
common sunflower p s  
curly dock p  
velvetleaf p s  
wild carrot p  
wild mustard p  
multiflora rose p  
shattercane p s

### Common Weeds

large crabgrass p  
common ragweed p s  
common milkweed p  
dandelion p s  
giant ragweed p s  
giant foxtail p s  
common lambsquarters p s  
tall morningglory p s  
redroot pigweed p s  
Pennsylvania smartweed p  
field pennycress p s  
wild buckwheat p  
woolly cupgrass p s  
yellow foxtail p s

### Insects<sup>5</sup>

alfalfa weevil a l  
aphid n a  
bean leaf beetle a  
black cutworm a l  
blister beetle a  
corn rootworm l  
western corn rootworm a  
northern corn rootworm a  
European corn borer a l  
fall armyworm l  
grasshopper n a  
potato leaf hopper n a  
soybean cyst nematode (cysts)  
two-spotted spider mite a

<sup>1</sup>Food-grade soybean must have a clear hilum and are usually larger or much smaller than commercial grade soybeans.

<sup>2</sup>This is a partial listing of the primary noxious weeds as outlined in the Iowa Weed Law.

<sup>3</sup>The official source for weed names is the Weed Science Society of America Composite List of Weeds ([www.wssa.net](http://www.wssa.net)).

<sup>4</sup>This is a partial listing of the secondary noxious weeds as outlined in the Iowa Weed Law.

<sup>5</sup>Images of insects can be obtained at Iowa State Entomology Image Gallery (<http://www.ent.iastate.edu/imagegal/>)

### III. Written Examination (250 points)

A 50-question multiple-choice examination covering agronomic practices and information will be given. The examination will focus on problem solving, decision making, marketing concepts, grain grading, biological principles and sustainable agricultural concepts underlying production practices of major crops which are grown in Iowa. Most questions will come from the reading and skills lists that follow. Example questions include biological principles related to variety selection, propagation, life cycles of plants (annual, biennial, perennial), soil and climatic adaptation and requirements, cultural practices affecting crop growth and quality, weed management, weed and seed laws, crop utilization, and environmental aspects of crop production.

Each correctly answered question will be worth 5 points. Students should bring a small hand calculator for solving problems and a No. 2 pencil for placing answers on the score sheet.

#### Reading List

Reference	Web Address
1. Corn Planting Guide	<a href="http://www.extension.iastate.edu/Publications/PM1885.pdf">http://www.extension.iastate.edu/Publications/PM1885.pdf</a>
2. Concepts and Rationale for Regional Nitrogen Rate Guidelines for Corn	<a href="http://www.extension.iastate.edu/Publications/pm2015.pdf">http://www.extension.iastate.edu/Publications/pm2015.pdf</a>
3. Iowa Crop Performance Test - Soybeans	<a href="http://www.extension.iastate.edu/Publications/AG18.pdf">http://www.extension.iastate.edu/Publications/AG18.pdf</a>
4. Soybean Replant Decisions	<a href="http://www.extension.iastate.edu/Publications/PM1851.pdf">http://www.extension.iastate.edu/Publications/PM1851.pdf</a>
5. Soybean Growth and Development (Not Available Online)	Order Online: <a href="https://www.extension.iastate.edu/store/">https://www.extension.iastate.edu/store/</a> PM 1945
6. How a Corn Plant Develops (Not Available Online)	Order Online: <a href="https://www.extension.iastate.edu/store/">https://www.extension.iastate.edu/store/</a> SR 48
7. Intercropping Winter Cereal Grains and Red Clover	<a href="http://www.extension.iastate.edu/Publications/PM2025.pdf">http://www.extension.iastate.edu/Publications/PM2025.pdf</a>
8. Selecting Forage Species	<a href="http://www.extension.iastate.edu/Publications/PM1792.pdf">http://www.extension.iastate.edu/Publications/PM1792.pdf</a>
9. Fertilizing Pastures	<a href="http://www.extension.iastate.edu/Publications/PM869.pdf">http://www.extension.iastate.edu/Publications/PM869.pdf</a>
10. Interpretation of Soil Test Results	<a href="http://www.extension.iastate.edu/Publications/PM1310.pdf">http://www.extension.iastate.edu/Publications/PM1310.pdf</a>
11. Using Manure Nutrients for Crop Production	<a href="http://www.extension.iastate.edu/Publications/PMR1003.pdf">http://www.extension.iastate.edu/Publications/PMR1003.pdf</a>
12. Soil Erosion, Crop Productivity and Cultural Practices	<a href="http://www.extension.iastate.edu/Publications/PM1870.pdf">http://www.extension.iastate.edu/Publications/PM1870.pdf</a>
13. Fundamentals of Organic Agriculture	<a href="http://www.extension.iastate.edu/Publications/PM1880.pdf">http://www.extension.iastate.edu/Publications/PM1880.pdf</a>
14. Switchgrass	<a href="http://www.extension.iastate.edu/Publications/AG200.pdf">http://www.extension.iastate.edu/Publications/AG200.pdf</a>
15. Soybean Cyst Nematode	<a href="http://www.extension.iastate.edu/Publications/PM879.pdf">http://www.extension.iastate.edu/Publications/PM879.pdf</a>
16.	
17.	
18.	

## Skills List

- 1) Calculate area, volume and unit conversions
- 2) Determine field size
- 3) Interpret pesticide labels
- 4) Determine application requirements for crop protection chemicals (product needed, adjuvants, carrier needed, area covered, etc.)
- 5) Calibrate sprayers, planters, and fertilization equipment
- 6) Determine fertilizer needs
- 7) Calculate fertilizer costs
- 8) Interpret a fertilizer analysis
- 9) Calculate pure live seed
- 10) Calculate seeding rates
- 11) Determine plant population per acre and % emergence
- 12) Estimate yield per acre
- 13) Calculate growing degree days for corn
- 14) Determine percent slope between two points in a field
- 15) Estimate the time needed to perform field operations
- 16) Determine losses during grain harvest
- 17) Calculate bin capacities
- 18) Convert grain and forage weights to common moisture contents
- 19) Calculate costs per acre for production inputs
- 20) Calculate profit per acre above production costs

## **IV. Team Event (250 points)**

The Team Event will be made up of problem solving activities that will require the participation of all individuals working together as a team. Scores for the team event are added to the final team score after individual contestant scores have been tabulated. The team event will be the last activity of the contest and will begin immediately after the conclusion of the identification, judging, and exam sections of the contest. There will be a strict time allotment of 30 minutes. Problems selected for the team event will be designed so that teams must carefully and effectively work together as a team to accurately complete the tasks/solutions on time. Students are encouraged to bring calculators but notes or additional reference materials are not allowed. Problems/tasks selected for this event may require basic agricultural knowledge, logic and deduction, and mathematical computations. When needed, the necessary information will be provided to complete some of the activities.

Examples of activities might be:

- Seed and planting problems: (e.g. determine population counts, number of seeds per pound, seed moisture or answers based on seed tag information, such as germination, purity, weed seed contamination, etc.)
- Soil fertility problems: (e.g. calculate pounds of N, P205, and K20, or solve problems based on soil test reports, such as nutrient and liming recommendations, etc.)
- General agriculture problems: (e.g. field size/locations, crop and pest management decisions, and logic/deductive reasoning problems related to farm activities, etc)

## Scoring and Ranking of Teams and Participants

1. To determine the individual and team winners, the participants will be ranked on the basis of the total score for four activity areas.

<b>Contest Event</b>	<b>Scoring</b>
Crops Judging	250 points
Seed, Plant, and Insect Identification	250 points
Written Examination	250 points
Total Individual Points	750 points
Team Event	250 points
Total Team Points Possible (3 contestants + team event score)	2500 points

2. Teams will be ranked into groups designated “Gold”, “Silver”, and “Bronze”. Teams that did not have three members will be listed as “Participants”. Teams that violate any rule will also receive a “Participation” rating.
3. The team winner on all areas will be designated the “Iowa Champion FFA Agronomy Management Team”.
4. For teams and individuals, ties will be broken first by the crop judging score and second by the written exam score.

## Awards

Awards listed below are at the discretion of the sponsor and pending availability of sponsorship. It is vitally important that participants write thank you letters to sponsors in order to retain their support. A thank you list naming current sponsors will be provided to each participating chapter at the event site.

Awards sponsored by Sand Seed Service, Inc. through the Iowa FFA Foundation:

Champion Team	Plaque
Reserve Champion Team	Plaque
Top 10 Teams	Rosettes
Members of Top 10 Teams	Rosettes
Top 10 Individuals	Rosettes
1 <sup>st</sup> and 2 <sup>nd</sup> Place Individuals	Trophies
Top Team and Top Individuals - Crops Judging - Seed, Plant, and Insect Identification - Written Examination	Trophies

The Iowa FFA Association will award certificates to all the Crop Management teams and participants.

# Hay Judging Scorecard

Contestant No. \_\_\_\_\_

Print Name: \_\_\_\_\_

		Final Placing			
		1st	2nd	3rd	4th
Sample number:					
Points Available	Criteria	Score for each sample			
		1	2	3	4
0-40	<p><u>Leafiness</u> in legume hay is very important as most of the nutritive value is found in leaves. The relationship between leaves and protein, mineral and vitamin content, as well as digestibility, is highly correlated. 20 points for average leafiness, more for very leafy; less where fewer than average leaves are present.</p>				
0-30	<p><u>Condition</u> is an indication of hay quality reflecting how the hay was handled during harvesting and storage. The hay should be free of mold, dust, and other undesirable traits, with no evidence of heating. Hay should have good aroma, and not smell sour, moldy, or have other objectionable odors. Score 15 for average hay conditions; higher for much better than average; lower for excessive leaf shatter, bad odor, etc.</p>				
0-15	<p><u>Foreign material</u> is undesirable for feeding purposes and may be harmful. Some weeds are unpalatable and low in nutritive value. Weed seed in hay can spread through manure. Discount 2 points for each different kind of weed, more points if weeds are in abundance, discount 2 point for old stems.</p>				
0-15	<p><u>Color</u> in legume hay is an indication of Vitamin A content and conditions under which the forage was harvested and cured. Hay with dark green color will have higher Vitamin A potency. Score 5 points for average color; more for very green; fewer for rain damaged or sun-bleached hay.</p>				
0-100	Total score:				

## Silage Judging Scorecard

Contestant No. \_\_\_\_\_

Print Name: \_\_\_\_\_

		Final Placing			
		1st	2nd	3rd	4th
Sample number:					
Points Available	Criteria	Score for each sample			
		1	2	3	4
0-50	<p><u>Grain</u> content in silage reflects the available energy and is the most important factor in high quality silage. Silage with no grain will have reduced feeding value. Score 25 points for an average amount of grain; less than 25 for poor grain content; more for exceptional grain content.</p>				
0-25	<p><u>Color</u> of high-quality corn silage will have an olive green color, whereas, a dark brown to black color indicates excessive heating and faulty storage conditions. Score 20-25 points for olive green, 10-20 points for light green or greenish-brown, and 0-10 points for brown or black.</p>				
0-25	<p><u>Aroma</u> may be best described as a yeasty or pleasant, fermentable odor--a characteristic that is hard to describe. In contrast, butyric acid, ammonia, or musty odors are undesirable and indicate considerable loss in feed value and poor fermentation. Score 15-25 points for desirable odors and 0-15 for unpleasant odors.</p>				
0-100	Total score:				

## Oat Seed Judging Estimating The Value of Planting Seed

Contestant No. \_\_\_\_\_

Print Name: \_\_\_\_\_

		Final Placing			
		1st	2nd	3rd	4th
Sample number:					
Name of Class: <b>OAT</b>					
Evaluation Factors		Sample Number			
		1	2	3	4
Weed Seed	Primary Noxious (-40)				
	Secondary Noxious (-25)				
	Common (-10)				
Mixtures	Other varieties (-10)				
	Other Crop Seed				
	Rye (-20)				
	Wheat (-10)				
	Barley (-10)				
Inert	Sticks, Stems, etc. (-5)				
Soundness	Weathered (-5)				
	Sprouted (-5)				
	Immature (-5)				
	Lightweight (-5)				
	Dehulled, Cracked and Broken (-5)				
	Lacks Luster (-5)				
	Disease (-5)				
	Insect Damage (-5)				
Total score (100 points – deductions):					

## Soybean Seed Judging

### Estimating The Value of Planting Seed

Contestant No. \_\_\_\_\_

Print Name: \_\_\_\_\_

		Final Placing			
		1st	2nd	3rd	4th
Sample number:					
Name of Class: <b>SOYBEAN</b>					
Evaluation Factors		Sample Number			
		1	2	3	4
Weed Seed	Primary Noxious (-40)				
	Secondary Noxious (-25)				
	Common (-10)				
Mixtures	Other varieties (-25)				
	Other Crop Seed (-25)				
Inert	Sticks, Stems, etc. (-5)				
Soundness	Weathered (-5)				
	Sprouted (-5)				
	Shriveled or immature seed (-10)				
	Cracked seed and injured seed coat (-10)				
	Diseased or stained (-5)				
Total score (100 points – deductions):					

# Market Grade Factor Identification Corn and Soybean

Contestant's Number \_\_\_\_\_

Score \_\_\_\_\_

Print Name: \_\_\_\_\_

Check (x) the single market factor that most affects grade and value in each of the corn samples 1 to 13 and soybean samples 14 to 25.

Sample Number													
Corn: Grade Factor	1	2	3	4	5	6	7	8	9	10	11	12	13
No Defects													
Heat Damage													
Frost Damage													
Sprouted													
Blue Eyed Mold													
Treated													
Inseparable Stones													
Immature Grain													
Other Crop													
Contrasting Corn Classes													
Contamination (Rodent/Bird)													
Inert (Weed Seed)													
Inert (Cob)													
Sample Number													
Soybean: Grade Factor	14	15	16	17	18	19	20	21	22	23	24	25	
No Defects													
Immature													
Heat Damage													
Treated													
Inseparable Stones													
Mechanical Damage (splits)													
Other Crop													
Inert (Weed Seed)													
Inert (Pods and Stems)													
Other Varieties													
Disease													
Weathered													

### Seed, Plant, and Insect Identification

CONTESTANT NO. \_\_\_\_\_ PRINT NAME: \_\_\_\_\_

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

CROPS

C-1.	Barley
C-2.	Corn
C-3.	Grain Sorghum
C-4.	Oat
C-5.	Rye
C-6.	Wheat
C-7.	Soybean
C-8.	Alfalfa
C-9.	Birdsfoot Trefoil
C-10.	Crownvetch
C-11.	Red Clover
C-12.	Sweetclover
C-13.	White Clover
C-14.	Orchardgrass
C-15.	Reed Canarygrass
C-16.	Smooth Bromegrass
C-17.	Tall Fescue
C-18.	Timothy
C-19.	Switchgrass

WEEDS

W-1.	Bull Thistle*
W-2.	Field Bindweed*
W-3.	Canada Thistle*
W-4.	Horse Nettle*
W-5.	Musk Thistle*
W-6.	Quackgrass*
W-7.	Cocklebur**
W-8.	Common Sunflower**
W-9.	Curly Dock**
W-10.	Velvetleaf**
W-11.	Wild Carrot**
W-12.	Wild Mustard**
W-13.	Multiflora Rose**
W-14.	Shattercane**
W-15.	Large Crabgrass***
W-16.	Common Ragweed***
W-17.	Common Milkweed***
W-18.	Dandelion***
W-19.	Giant Ragweed***
W-20.	Giant Foxtail***
W-21.	Common Lambsquarters***
W-22.	Tall Morningglory***
W-23.	Redroot Pigweed***
W-24.	Pennsylvania Smartweed***
W-25.	Field Pennycress***
W-26.	Wild Buckwheat***
W-27.	Woolly Cupgrass***
W-28.	Yellow Foxtail***

\* Primary Noxious Weed

\*\* Secondary Noxious Weed

\*\*\*Common Weed

INSECTS

I-1.	Alfalfa Weevil—Adult
I-2.	Alfalfa Weevil—Larvae
I-3.	Aphid—Nymph
I-4.	Aphid—Adult
I-5.	Bean Leaf Beetle
I-6.	Black Cutworm
I-7.	Blister Beetle
I-8.	Corn Rootworm
I-9.	Western Corn Rootworm Beetle
I-10.	Northern Corn Rootworm Beetle
I-11.	European Corn Borer—Adult
I-12.	European Corn Borer—Larvae
I-13.	Fall Armyworm
I-14.	Grasshopper—Nymph
I-15.	Grasshopper—Adult
I-16.	Potato Leaf Hopper—Nymph
I-17.	Potato Leaf Hopper—Adult
I-18.	Soybean Cyst Nematode
I-19.	Two-Spotted Spider Mite

SEEDS

S-1.	Barley
S-2.	Dent Corn
S-3.	Pop Corn
S-4.	Grain Sorghum
S-5.	Oat
S-6.	Rye
S-7.	Hard Red Winter Wheat
S-8.	Soft Red Winter Wheat
S-9.	Food-Grade Soybeans
S-10.	Commercial-Grade Soybeans
S-11.	Alfalfa
S-12.	Birdsfoot Trefoil
S-13.	Red Clover
S-14.	Orchardgrass
S-15.	Reed Canarygrass
S-16.	Smooth Bromegrass
S-17.	Switchgrass
S-18.	Bull Thistle
S-19.	Field Bindweed
S-20.	Canada Thistle
S-21.	Cocklebur
S-22.	Common Sunflower
S-23.	Velvetleaf
S-24.	Shattercane
S-25.	Common Ragweed
S-26.	Dandelion
S-27.	Giant Foxtail
S-28.	Common Lambsquarters
S-29.	Tall Morningglory
S-30.	Redroot Pigweed
S-31.	Field Pennycress
S-32.	Woolly Cupgrass
S-33.	Yellow Foxtail

