



# Crop & Seed ID



District & State 4-H O-Rama – Junior & Senior 4-H'ers  
Horticulture – Crop Management, Turf & Landscape Horticulture

## CROP JUDGING AND SEED IDENTIFICATION

### OBJECTIVE

Targeted Life Skills: Problem Solving, Wise Use of Resources, Self-Motivation, and Leadership

To provide an opportunity for faculty to share information about related college degree programs in horticulture, crop management, turf and landscape horticulture and career opportunities in:

Plant Breeding, Research, Teaching, Public Education at Universities, Farm Management, County Extension Service, Plant Protection Sales Representative, Crop Consultant, Soil Conservationist, Farming.

To provide 4-H'ers with the opportunity to identify seed and judge farm crops for their quality and market value.

Seed ID and Crop Judging help 4-H'ers to:

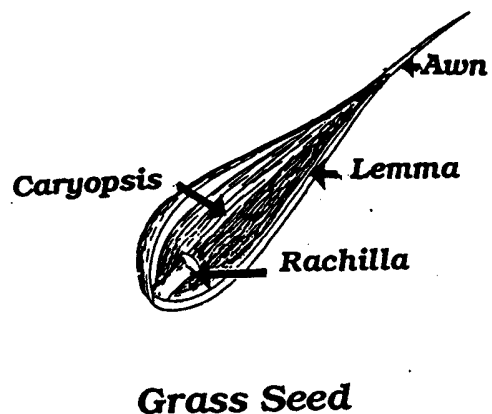
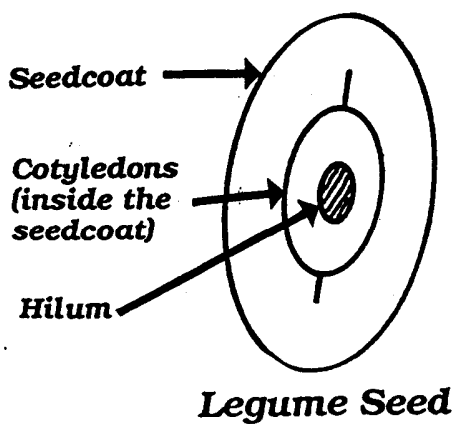
1. Learn the physical characteristics of the major crops grown in Arkansas.
2. Recognize factors that determine good and poor quality in crops for planting seed, feed, food, fiber and other commercial use.
3. Learn to make decisions when comparing crops of different quality.

### ACTIVITY

The activity will include the following:

1. **Seed Identification** – Identification of 25 samples of seed selected from a standard 47-sample set available from the state office for \$40 per set. Checks or money orders should be made to: Arkansas 4-H Foundation, Attn: Jeremy Ross. This part of the activity has a value of 500 points. A time limit of 25 minutes is allotted for this portion of the activity.

The drawings below illustrate the various parts of grass and legume seed. The color, shape, and size of these parts are used to help identify seed. Not labeled on the grass seed drawing are the two parts of the caryopsis — its germ and endosperm.



## 2. Crop Judging Classes

- a. Planting seed – Oats, fescue, soybeans, rice (choose any two)
- b. Market classes – cotton, hay and grain sorghum

Each of the judging classes will consist of four samples. Seed identification and the judging of planting seed and market classes will be in accordance with the attached guidelines.

Participation in the contest requires members to judge:

1. Any two of the following four classes of planting seed: oats, fescue, soybeans, rice. Members will have their choice as to which two classes they prefer not to judge.
2. Three market classes. Members must judge all three market classes. Hay may be grass or legume, but no choice will be given to the contestant.

## ELIGIBILITY

Each county may enter a **Junior** and a **Senior** 4-H member at the District 4-H O-Rama. First- through fifth-place **Senior** winners from each District O-Rama are eligible to compete at State O-Rama.

## AWARDS

**District 4-H O-Rama:** One trophy to the Senior winner and one trophy to the Junior winner. Ribbons will be awarded to second-, third-, fourth- and fifth-place winners in the Junior and Senior activity.

**Arkansas 4-H O-Rama:** One trophy for the Senior winner. Ribbons will be awarded to the second-, third-, fourth- and fifth-place winners.

## JUDGING

This activity will be judged in accordance with the procedures outlined in the attached guidelines.

## **PREPARED BY**

Jason Kelley, extension agronomist – wheat and feed grains  
Jeremy Ross, extension agronomist – soybeans  
Tom Barber, extension agronomist – cotton  
Chuck Wilson, extension agronomist – rice

## **CONTACT PERSON**

Jeremy Ross, extension agronomist - soybeans

**Note:** Work done in connection with the District and State 4-H crops judging activities should be reported in 4-H Record Books under Agriculture, Field Crops, Achievement, Conservation of Natural Resources, or under other related areas.

<b>4-H SEED IDENTIFICATION</b>		
<b>Description of Seed</b>		
<b>CROP</b>	<b>KIND OR VARIETY</b>	<b>DESCRIPTION</b>
<b>CROPS</b>		
Corn	Yellow	Large seed roughly as large as or larger than your little fingernail and three-sixteenths inches thick. Yellow or white grain, white to creamy starch inside, dent in crown when dry.
Popcorn		Kernels small (one-third as large as dent corn) pointed or rounded, white or yellow, very hard endosperm.
Wheat		Free of lemma and palea, most varieties are rather full and plump; light reddish-brown in color
Rye		Kernels long, very slender, pointed germ, brownish-green to tan color (other kernel variations exist).
Oats		Seed are covered with a hard, shuck-like structure called lemma and palea. The apex of these parts is usually rough or awned. The rachilla is attached to the seed.
Cotton		Three-eighths inches long, three-sixteenths inches thick, wedge-shaped, seed coat hard and black in color, entirely covered with lint unless acid delinted.
Rice	Long grain	Long, slender, smooth, straw-colored hull. May have short awn on tip of some grain. White color when hull is removed.
Rice	Medium grain	Medium, smooth, straw-colored hull. Shorter and more plump than long grain. White color when hull is removed.
Grain Sorghum		Seed roundish, glumes covering the caryopsis vary in color from straw-red to black, depending on the variety. Hulled seed are reddish, yellow or white, depending on variety. Germ (small "dimple" that is lighter in color than the rest of the seed) on one end, similar to wheat.
Rapeseed (rape)		Small, round, reddish-brown colored seed with light colored Hilum one-half the size of a BB pellet. Very light in weight.
<b>LEGUMES</b>		
Soybeans	Black Hilum	Round seed, yellow, black Hilum.
Soybeans	Laredo	Medium seed, dull, black color, kidney-shaped, very flat, with dark brown to black Hilum.
Soybeans	Buff Hilum	Round seed, yellow, buff-colored (light brown) Hilum.
Vetch	Hairy	Round seed, dark brown to black in color. About the size of buckshot, 3 mm diameter.
Vetch	Common	
Sweetclover		Similar to alfalfa in size and color, many seed are mitt-shaped.

Alfalfa		Seed 2 mm long; many are kidney-shaped; color greenish-yellow to olive; turn reddish brown with age.
Sunflower		The seed with its black or striped hull intact is roughly fingernail-sized and as thick as a kernel of corn.
Clover	Arrowleaf	Seed is reddish-brown and two-thirds as large as red clover seed.
Clover	Crimson	Seed 3 mm long, larger than alfalfa, plump, somewhat egg-shaped with a glossy yellowish brown color. The Hilum is hardly detectable.
Clover	Red	Seed medium (smaller than alfalfa), varies in color from yellow to dark purple, mitt-shaped.
Clover	White	Very small, 1 mm long, pale yellow to orange-brown color.
Lespedeza	Korean	Medium seed, brownish-gray hulls, oval, have small calyx at base of seed. Seed show a definite cross-veining. Dehulled seed are dark purple.
Lespedeza	Kobe	Unhulled seed are medium-sized, brown hulls, calyx teeth extend one-half to three-fourths the length of hulls. Hulled seed are purple-to-black with light flecks or are occasionally purplish brown. Unhulled seed are reddish brown in color. They are shield-shaped with three distinct points formed by the hull, opposite the base end. Largest of lespedeza seed. Hulled and/or unhulled seed may appear in the sample to be identified.
Lespedeza	Sericea	Hulled seed are modified egg-shaped, glossy, olive or light, greenish brown in color, occasionally flecked with purple. The unhulled seed are dark, reddish brown in color. The pods are oblong, oval, and shield-shaped.
Winter Peas	Austrian	Seed large, 5 mm diameter, nearly round, light brown flecked with black. Gray Hilum with black slit through center.
<b>Grasses</b>		
Bermudagrass		Unhulled seed extremely small, 2 mm long, boat-shaped, enclosed in shiny straw-colored lemma. Hulled seed extremely small, black to brownish in color. Either or both hulled or unhulled seed may appear in the sample to be identified.
Dallisgrass		Seed round, flat, convex on one side, green-to-light brown with age, hairy, somewhat like the tomato seed.
Bahiagrass		Light, straw-colored seed, semi-oval flattened on one side, free of hairs, slightly pointed.
Lovegrass		Extremely small, brown in color, lemma attached.
Johnsongrass		Seed, straw, tan, purple-to-black in color, fine appressed hairs, rachillas knobbed and of unequal length, seed enclosed in lemma.
Millet	Pearl	Threshed seed free of lemma and palea, oval-shaped, light gray to tan color.
Plains bluestem		Small, fuzz-covered seed; awns are twisted, about 0.4 to 0.6 inches long.

Sudangrass		Attached lemma tan to reddish, oblong and pointed. The rachillas are the same length and knobbed.
Ryegrass		Seed one-fourth of an inch long, rachilla flat and square at top, short awn.
Orchardgrass		Seed 6 mm long, lemma and palea curved to one side of apex. Some seed cluster together.
Tall Fescue		Seed 6 mm long, with round and knobbed rachilla standing out from seed.
<b>Weed Seeds</b>		
Morningglory		Seed black, granular, about 4 mm long, triangular, wedge-shaped (one side round, two sides flat).
Cheat		Seed 7 mm long, enclosed in deeply rolled lemma, lemma awned, seed adheres to palea and is deeply grooved, glossy, light tan color.
Cocklebur		Seed and bur about 25 mm long, dark brown, rather slender, with pointed tip. The seeds are enclosed inside a bur with very stiff and pointed bristles.
Red Rice		Very similar to common white rice with the exception that rice kernels are red (rather than white) when hull is removed. Tiny hairs are present on the exterior of the hull. These hairs give the seed a rough appearance. Usually medium grain type.
Hemp Sesbania (Coffeebean)		Seed 4 mm long, elongated, brown.
Pigweed		Tiny, rounded, shiny, black seed.
Balloonvine		Roughly two-thirds of each seed is black, and one-third is light-colored. Round, small soybean size.
Purple Moonflower		Large, dark brown, 10 mm long. The seed is as broad as it is long, has the same shape as morning glory.
Curly Dock		When shelled from their "husks," the small seeds are brown, 2 mm across. Each seed has three flat sides, is pyramid-shaped, commonly with sharp angles. The husk, if present, is papery and a brownish red color. (Seed in sample vials may contain both hulled and unhulled seed.)
Barnyardgrass		Small buff-colored seed. If unhulled, lemma is somewhat pointed.

4-H SEED I.D. LIST (2007)		
No.	Crop	Kind or Variety
1	Alfalfa	
2	Austrian winter peas	
3	Bahiagrass	
4	Balloonvine	
5	Barnyardgrass	
6	Bermudagrass	
7	Plains Bluestem	
8	Cheat	
9	Clover	Arrowleaf
10	Clover	Crimson
11	Clover	Red
12	Clover	White
13	Cocklebur	
14	Corn	Yellow
15	Cotton	
16	Curly dock	
17	Dallisgrass	
18	Grain Sorghum	
19	Hemp sesbania (Coffeebean)	
20	Johnsongrass	
21	Lespedeza	Kobe
22	Lespedeza	Korean
23	Lespedeza	Sericea
24	Lovegrass	
25	Millet	Pearl
26	Morningglory	
27	Oats	
28	Orchardgrass	
29	Pigweed C63	
30	Popcorn	
31	Purple moonflower	
32	Rapeseed (rape)	
33	Red rice	
34	Rice	long grain
35	Rice	medium grain
36	Rye	
37	Ryegrass	
38	Soybean	Black hilum
39	Soybean	Buff hilum
40	Soybean	Laredo
41	Sudangrass	
42	Sunflower	
43	Sweetclover	
44	Tall fescue	
45	Vetch	common
46	Vetch	Hairy
47	Wheat	

(Date)

(Name/Address)

( ) Seed Kit(s) @ \$40 each =

Please make check payable to **Arkansas 4-H Foundation**.

**Please mail to the following:**

University of Arkansas Cooperative Extension Service  
Crop, Soil, and Environmental Sciences  
P O Box 391  
Little Rock AR 72203  
Attention: Jeremy Ross

Seed kit(s) will be sent upon receipt of payment.

### How to Fill out the Seed Identification Form

Each participant will receive a blank sheet similar to the one shown in miniature below. It will contain no writing in the blanks when you receive it.

SEED IDENTIFICATION			
Vial No.	Crop	Kind or Variety	Score
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
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16.			
17.			
18.			
19.			
20.			
21.			
22.			
23.			
24.			
25.			

Twenty-five numbered Petri dishes will be laid out on a table. Each Petri dish will contain the seed of a crop or weed that grows in Arkansas. After you look at the seed in each Petri dish, you will write its name in the blank to the right of the proper Petri dish number. For example, if Petri dish No. 4 contains popcorn, you would write this crop name beside the number four on the Seed Identification sheet. If Petri dish No. 9 contains hairy vetch, the *Crop* name (vetch) should be placed in the first blank to the right of the number nine on the sheet and "Hairy" must be placed in the second blank to the right to indicate the *Kind or Variety* of vetch. Points will be deducted unless the seeds are identified exactly as shown in the seed lists above. Notice that none of the weed seeds have a kind or variety name.

Deductions are: Eight points for improper kind or variety and two points for seriously misspelled words. Each correct line has a total value of 20 points.

### CROP/SEED JUDGING

The second part of the Crop Judging activity involves the judging of seed that are sold for feed, food, or planting purposes. Judging factors are similar for both. However, the presence of a few weed seed is much more harmful in planting seed than in those to be processed for food. Non-uniform soy-bean seed may create seeding rate problems for the farmer who wants to plant them, but create no problem at all to the food processor. A seed mixture of medium and long grain rice could create milling problems.

Factors that determine the quality of seed may be classified into either seed purity or seed soundness factors.

## I. Seed Purity Factors

Mixtures of other varieties, other crops, weed seed, and inert matter in the sample of seed must be recognized by the seed judge. A decision must then be made as to what effect they have on the quality of seed they contaminate.

**Other Crop Seeds** - Barley in oats is inseparable mechanically and is considered more serious than mixtures of any other small grains. Oats containing mixtures of other small grains are considered more serious than mixtures of other crop seeds.

Fescue may be contaminated with ryegrass.

Corn and grain sorghum are the only crops likely to become mixed with soybeans during harvest. Other crops growing in the same field with soybeans may cause trouble in harvesting. Some crop seed which normally do not occur as mixtures in the field may enter as mixtures during processing, handling or storing. Examples of such mixtures are soybeans with rice and wheat with milo.

**Mixtures of Varieties** - In some cases, there are differences between varieties of the same crop, as in the case of two soybean or two rice varieties. Varieties differ in value because of differences in maturity, disease resistance, yield, winter hardiness, standing ability, etc. Therefore, when judging crop seed, one must watch for mixtures of distinguishable varieties since they can influence the quality, performance and value of the seed.

Rice may be classified as short, medium or long grain types. There are different varieties in each type. Mixtures of varieties may sometimes be detected by grain shape and sometimes by color of hulls or pubescence (small hair) on the hulls. In the case of soybeans, hilum color may be used to distinguish some varieties.

**Weed Seed** - Small amounts of restricted noxious weeds are permitted in non-certified seed offered for sale; however, Arkansas-certified seed must be free of all objectionable noxious weeds. Common weeds are not as serious as noxious ones. Most of the weed seeds listed previously are of the noxious category. Weed seed are placed in the noxious category because they are either difficult to control (Johnsongrass is an example), they produce objectionable flavor (garlic in wheat is an example), the seed contain toxins/poisons (crotalaria in soybeans is an example), or because they are difficult to remove from planting seed (cheat in oats is one example, and red rice in rice is another).

The Arkansas State Plant Board is Arkansas's official seed regulatory agency and classifies 22 weed seeds as noxious. The objectionable noxious weed seeds prohibited in Arkansas certified seed of soybeans are cocklebur, johnsongrass, wild onions, wild garlic, and balloonvine. The objectionable noxious weed seeds prohibited in Arkansas certified seed are rice, oats, fescue, johnsongrass and wild garlic.

**Inert Matter** - Chaff, stems, stones and other inert materials reduce the amount of pure seed in the sample. Therefore, farmers would need to increase seeding rates to obtain a desired stand if seed containing inert matter were planted. Inert material may damage or plug the seeding equipment and contribute to poor stands. Trash may also lead to absorption of moisture.

## 2. Seed Soundness Factors

An accurate germination test is a good method of determining the soundness of seed. But the results of such a test are not used in this 4-H activity. Therefore, you must rely upon visible factors of soundness which will indicate the seed's potential for producing strong and healthy seedlings. Some of the more important factors that reduce the quality of seed are immaturity, damage of various types and lack of uniformity.

### Immaturity

Immature seed occur in crops harvested too early or crops that are stunted by bad weather or herbicides. They may not contain enough stored food for desired seedling development. Shriveled, green soybean seed are more serious than plump, green seed in a sample. Soybean seed that have green cotyledons as well as green seed coats are classified as green or immature.

Shriveled or light weight (blank) seed may result from disease, dry weather or immaturity. These seed usually do not develop into normal seedlings. Learn to recognize shriveled seed as lightweight seed. When many such lightweight seed is observed, the sample should be placed below other samples having plump or well-filled seed.

### Damage

- A. Heat Damage - When harvested seed with high moisture is stored, damage may occur due to disease organisms that thrive at high moisture levels. Many of the seeds will turn brown or have a burnt appearance. Poor germination will result. Seed which show discoloration may be dead.
- B. Sprout Damage - When seed sprouts before it is harvested, or while in storage, it is worthless for planting purposes.
- C. Insect Damage - Some insects eat only the germ of seed. This destroys the seed's ability to germinate. Other insects tunnel into the seed without damaging the germ. They may destroy only the stored food inside the seed. Insects themselves or the damage they do may be easily seen on some seed. But young insects may remain hidden inside other seed for a time, then emerge to do damage that becomes visible later.
- D. Excessive Hulling - Rice that has a large percentage of hulled kernel is more subject to over-drying that causes "checking" or stress cracking. Even though cracked seeds may germinate, their quality is lowered. Therefore, risks are greater for farmers who use such seed for planting purposes.
- E. Weathering - When seed is left exposed in the field for extended periods after maturation, it may become bleached, stained or discolored (weathered). Bright seed indicates that the crop was harvested at the proper time. Generally, stronger seedlings develop from bright seed rather than from weathered seed. Seed may become dull or dark-colored with age.
- F. Disease Damage
  1. Soybeans - Soybean seed that are wrinkled and pitted by dark splotches are not likely to produce healthy seedlings. Purple stain disease usually does not affect germination unless the seed coat is wrinkled. However, this disease may cause a reduction in yield of the next crop. All diseases detected in soybean samples will be considered by the contestants as being equal.

2. Rice - Seeds with brown spots may be infected with a seed-borne organism. "Smutty" or black grain usually germinates poorly.
3. Oats and Fescue - There are no serious diseases distinguishable in threshed oats. Black and brown splotches appearing on the lemma seem to cause no damage and are not to be considered in judging. Samples of fescue seed may contain undesirable black ergot bodies that are the same size of the seed. These can cause an illness in cattle that eat them.

### WHAT TO DO WHEN YOU JUDGE

Each participant will judge two classes of planting seed. Each class has a maximum value of 100 points and must be judged within 10 minutes. Four classes of planting seed (rice, soybeans, oats and tall fescue) will be displayed. From these four, the participant may judge any two he (or she) chooses. The remaining two classes need not be judged.

Each participant will also judge three market classes of agronomic crops. These agronomic crop classes include: market grain sorghum, market cotton and market hay. Each class consists of four samples. Each class has a maximum value of 100 points and must be judged within 10 minutes.

Let's assume you choose to judge one class of soybeans and one class of oats and that you begin by judging the four samples in the soybean class. Look carefully at the purity and soundness of the seed in one of the four soybean samples as you pull the seed slowly from one side of the pan to the other. Make a mental note of the good and bad features of this sample. When you have evaluated the seed in this first pan, repeat the same procedure for the other three pans in the soybean class. Then decide which sample ranks first, second, third, and fourth, and put these numbers in the proper blanks on your soybean crop judging card (see example below). Turn the completed soybean card in to the supervisor of the judging activity. Then move to the oat class and repeat the same procedure for it. Read the material below to find out how to fill out your card properly.

### HOW TO FILL OUT THE CROP JUDGING CARD

As you enter the room to participate in the crop identification and judging activity, the person in charge of the activity will give you five cards similar to the one shown below and will assign you a participant number.

Let's assume your name is Holstein Jersey and the number assigned you is 17. You will place your name and participant number on each of the cards. On one card you will write cotton in the blank beside "class." On a second card, the word "grain sorghum" will be written. On a third card, the word "hay" will be written. This leaves two cards for you to enter the names of the two classes of planting seed that you choose to judge.

<b>Crop Judging Card</b>				
Name		Participant's Number:		
Class:				
Placing:	1 <sup>st</sup> _____	2 <sup>nd</sup> _____	3 <sup>rd</sup> _____	4 <sup>th</sup> _____

Each class of seed, hay, or cotton will consist of four samples. As you judge each class, you must decide which of the four samples in the class is best. The four samples in each class will be numbered 1, 2, 3 or 4. If you think sample number 3 is best (first place), then write the number 3 on the card in the blank beside "1st \_\_\_\_". Be sure to put the correct class name on each judging card. For example, when you judge the cotton class, be sure you record your four placings on the card on which you have written "cotton." The information given on the following sheets will help you decide how to rank the four samples in each class you judge.

**SEED JUDGING STANDARD  
 FOR SOYBEANS**

<u>Judging Factors</u>	<u>Comparison Values*</u>	<u>Point Value</u>
<b>A. Purity</b>		
1. Other crops .....		30
a. Other varieties	20	
b. Other crops (corn, cowpeas, etc.)	10	
2. Weed seed .....		35
a. Noxious	25	
b. Common	10	
3. Inert matter (stems, trash, soil, stones, etc.) .....		5
<b>B. Soundness .....</b>		<b>30</b>
1. Disease (reddish brown to purple spots or purple stain)	10	
2. Damaged (heat, sprout, insect or weathered)	8	
3. Immature (green or shriveled)	7	
4. Split, broken or not uniform in size	5	
	Total Possible Points	100

\* These values should be used as a guide to the comparative seriousness of the factors found in the seed sample. Where samples have the same judging factors, the amount of discount value will be in proportion to the quantity or degree of contamination.

**SEED JUDGING STANDARD  
 FOR RICE**

<u>Judging Factors</u>	<u>Comparison Values*</u>	<u>Point Value</u>
A. Purity		
1. Mixtures of varieties or other crops .....		30
a. Other rice varieties	15	
b. Wheat, milo or soybeans	10	
c. Other crop seed	5	
2. Weed seed .....		50
a. Red rice	25	
b. Hemp sesbania, northern jointvetch	15	
c. Morningglory	10	
3. Freedom from inert matter (straw, chaff, soil, etc.) .....		5
B. Soundness .....		20
1. Damaged (heat, sprout, insect or badly weathered)	5	
2. Immature (lightweight, chaffy and thin)	5	
3. Hulled or broken seed	5	
4. "Smutty" kernels or brown spot	5	
	Total Possible Points	100

\* These values should be used as a guide to the comparative seriousness of the factors found in the seed sample. Where samples have the same judging factors, the amount of discount value will be in proportion to the quantity or degree of contamination. Samples may have weeds in more than one sample.

**SEED JUDGING STANDARD  
 FOR OATS**

<u>Judging Factors</u>	<u>Comparison Values*</u>	<u>Point Value</u>
A. Purity		
1. Other crops .....		30
a. Barley	15	
b. Other small grains, wheat or vetch	10	
c. Other crop seed	5	
2. Weed seed .....		35
a. Noxious	25	
b. Common	10	
3. Freedom from inert matter (stems, chaff, soil, stones, etc.) .....		5
B. Soundness .....		30
1. Damaged (heat, sprout, insect or badly weathered)	10	
2. Slightly weathered	8	
3. Immature (lightweight, chaffy and thin)	7	
4. Hulled or broken seed	5	
	Total Possible Points	100

\* These values should be used as a guide to the comparative seriousness of the factors found in the seed sample. Where samples have the same judging factors, the amount of discount value will be in proportion to the quantity or degree of contamination. Samples may have weeds in more than one sample.

**SEED JUDGING STANDARD  
 FOR FESCUE**

<u>Judging Factors</u>	<u>Comparison Values*</u>	<u>Point Value</u>
A. Purity		
1. Other crops .....		30
a. Ryegrass	15	
b. Small grains	10	
c. Other crop seed	5	
2. Weed seed .....		35
a. Noxious	25	
b. Common	10	
3. Freedom from inert matter (stems, chaff, soil, stones, etc.) .....		5
B. Soundness .....		30
1. Damaged (heat, sprout, insect or badly weathered)	10	
2. Slightly weathered	8	
3. Immature (lightweight, chaffy and thin)	7	
4. Hulled or broken seed	5	
	Total Possible Points	100

\* These values should be used as a guide to the comparative seriousness of the factors found in the seed sample. Where samples have the same judging factors, the amount of discount value will be in proportion to the quantity or degree of contamination. Samples may have weeds in more than one sample.

### MARKET CLASS JUDGING STANDARD FOR HAY

In judging hay for market, you will judge four small samples and rank them in order of quality. The hay class may be alfalfa, tall fescue or bermuda. No choice will be given as to which of these may be judged.

**Hay for Market** is judged visually for its leafiness, purity, color, maturity, amount of foreign material and damage. Look at the point values below to determine the order of importance in which you should consider these factors, damage and purity.

<u>Judging Factor</u>	<u>Point Value</u>
1. <u>Maturity</u> – Leafiness, flowers and seedheads in hay are indications of the stage of maturity at the time the hay was harvested.	..... 40
a. Leafiness indicates the relative amount of leaves in the hay as compared to the amount of stems. Better hays are very leafy. Hay that has lost its leaves is poor quality. This is especially important in legume hay, as the leaves contain more protein than the stems.	
b. Seedheads or Blooms - If no seed heads or blooms are present, the hay was likely cut in a vegetative stage of growth and will be of high quality. If mature seed are present on the hay, it was likely harvested too late to be of highest quality.	
2. <u>Color</u> - A uniform green to dark green is highly preferred to a light green or brown. Hay cut at the correct stage and properly cured has the desired green color.	..... 15
3. <u>Foreign material</u> indicates the amount of weeds, sticks, stalks and other coarse, woody materials present in the hay. Other objectionable materials that may be present in hay include briars, thorns and weeds.	..... 15
4. <u>Damage</u> indicates the condition of the hay. Such factors as odor, mold, mustiness, heating, weathering, undercuring and dustiness are considered. Severely damaged hay may not be fit for feed and, regardless of other factors, should be classed very low.	..... 20
5. <u>Purity</u> – Hay should be pure as to kind of crop. A legume hay should contain only legumes and grass hay should contain only grasses. With all other factors equal, mixed hay carries a lower grade.	..... 10
Total	..... 100

#### Placings

Study carefully each of the four samples in the class to determine the five quality factors present in each. Please do not touch the samples. You can locate all the factors that determine ranking by visually inspecting the samples carefully and by smelling them for moldy odors.

## MARKET CLASS JUDGING STANDARD FOR COTTON

In judging cotton, place samples 1-2-3-4 in order of value in dollars. Judge each sample on:

1. Color. Give color the greatest consideration in placing the samples. The cotton should be a bright or creamy white.
2. Foreign Material. Consider the amount of foreign material next. The kind of foreign material makes some difference in grade. Small pin trash discounts a sample more than large trash.
3. Gin Preparation is the last consideration in judging these samples. The smoother the ginning, the better the cotton. Neps, gin-cut staple, and stringy cotton that gives a rough appearance are evidences of poor ginning.

### What to Do

Four samples are placed on a table where there is a good north light, and numbered 1-2-3-4.

You are not to class cotton, but to place the samples in order of value.

Study each sample by the following U.S. standards and determine the placings. Do not remove the samples from their container.

Color may range from white, spotted, tinged, yellow-stained to gray.

Foreign material includes leaf, bark, motes, sand and dust.

Preparation ranges from smooth, well-ginned cotton to gin-cut and neppy cotton.

### Why Grade Cotton?

Cotton is sold on the basis of grade and staple. If you are going to grow cotton, it is important that you know something about the grade of your crop. Without this knowledge, you will be at a disadvantage in selling your cotton and at the mercy of the buyer.

**MARKET CLASS JUDGING .STANDARD  
 FOR GRAIN SORGHUM**

In judging grain sorghum for market, you will judge four samples and place them in order of quality. The sorghum class will be yellow, white, brown or mixed.

Grain sorghum is judged for its quality, purity, foreign material, damage and color. The order of importance in grading grain sorghum is indicated by the points given to each factor below.

<u>Judging Factor</u>	<u>Point Value</u>
1. <u>Heat damage</u> indicates the amount of damage caused by heat from drying or in storage. Heat-damaged grain has been materially discolored throughout the kernel. This lowers the milling and feeding value.	..... 30
2. <u>Sprouting</u> – The evidence of sprouting must be conclusive. Sprouting lowers the quality, but not as much as heat.	..... 25
3. <u>Weathering</u> is deterioration of the grain in the field. Weathered grain will be “off-color,” usually a bleached gray color. Weathering is caused by fungi and other organisms growing on the grain and then bleaching by sun and rain.	..... 20
4. <u>Foreign material</u> is dockage, other grains and broken kernels.	..... 25
a. <u>Dockage</u> – The small trash, finely broken kernels, dirt and weed seeds are considered as dockage. It is material that passes through a 2-1/2/64th round hole screen. Total: 10 points.	
b. <u>Other grains</u> shall be barley, corn, oats, rye, soybeans, rice, wheat, popcorn and non-grain sorghum. Total: 10 points	
c. <u>Broken kernels</u> and material not considered dockage except other grains. Total: 5 points	
	Total ..... 100

A mixed class of grain sorghum is one which contains more than 10 percent of grain sorghum of another color. Yellow sorghum may be grain with yellow, salmon-pink, or red seed coats. White sorghum may consist only of seed with white seed coats. Brown sorghum has light or dark brown seed coats.

**Placing**

Study the four samples carefully and determine the factors present in each. Then place the samples 1-2-3-4.