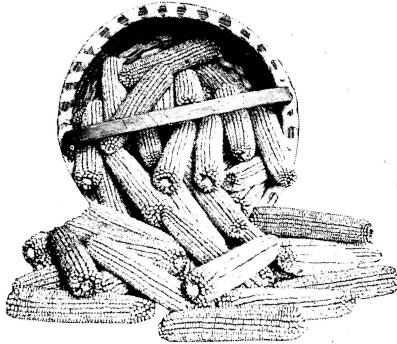


# THE GRAIN JUDGING CLUB

Boys' and Girls' Club Circular 14

COLUMBIA, MO.

JUNE, 1924



**COOPERATIVE EXTENSION WORK IN  
AGRICULTURE AND HOME ECONOMICS**  
UNIVERSITY OF MISSOURI COLLEGE OF AGRICULTURE AND THE UNITED  
STATES DEPARTMENT OF AGRICULTURE COOPERATING  
A. J. MEYER, Director, Agricultural Extension Service  
Distributed in furtherance of the Acts of Congress of May 8, and June 30, 1914



# The Grain Judging Club

The object of the grain judging work is to organize boys and girls into groups for the purpose of teaching the members how to identify the different varieties of grain by comparison, and how to test, judge and store seed corn; and to train the members in community organization and rural leadership.

## REQUIREMENTS

Each club member is required to do the following:

1. To score with the score card at least five samples each of four different grains.
2. To place without the aid of the score card at least the following number of classes, each class consisting of four samples:
  - (1) Corn: single ear, four classes; ten-ear, four classes.
  - (2) Wheat.
  - (3) Oats.
  - (4) Soybeans or cowpeas.
  - (5) Grass seed, alfalfa, or clover; one class.
3. To learn to identify the plants of the grains studied.
4. To keep a record of work done at club meetings, to fill out the summary blanks of the work completed, and to write a story of the grain judging club work for the year, in a record book provided by the Agricultural Extension Service.
5. To attend and take part in a local achievement day program.

## SUGGESTIVE STEPS IN ORGANIZING AND CONDUCTING BOYS' AND GIRLS' GRAIN JUDGING CLUBS

1. The grain judging club work should be sponsored by an active community organization of some kind.
2. A community advisory committee of about three interested persons should be selected by the community organization to back-up club work locally. In communities already organized, the regular committee on boys' and girls' work should head-up the club work.

Note.—Prepared by C. E. Carter, Field Crops Extension Specialist, in collaboration with Theodore T. Martin, State Club Agent.

## RESPONSIBILITIES OF DIFFERENT PERSONS IN GRAIN JUDGING CLUB WORK

Event in the club program for the year	Time and place	What the local club leader (and community) will do.	What the county agent, home economics agent, or county project leader will do	What the State College of Agriculture will do.
County club leaders' school or conference.	At central place. Before clubs are started if possible.	Attend.	Arrange. Notify. Attend.	Furnish club specialist on organization and methods, and subject matter if necessary.
Enroll members.	At community center. Between Sept. 1 and Feb. 1.	See boys and girls and their parents. Explain club work in public meeting and through newspapers.	Assist local leader if necessary. Furnish enrollment blanks.	Supply enrollment blanks to counties.
Organization.	To be arranged in community.	Arrange meeting. Attend. Explain work of club. Send enrollments to county agent, county project leader, or State Club Office.	Assist leader if necessary. Send enrollment to State Club Office for club literature.	
Hold six or more club meetings.	To be decided by the leader and club.	Distribute club record books and circulars. Arrange. Attend. Instruct. Bring into meeting a grain grower	Send club literature to local leader. Attend at least one meeting in addition to county meeting.	Furnish club literature, Secretary's book, etc.
Local achievement exercise.	In January, February, or March.	Arrange and direct. Have exhibit. Have demonstrations. Have judging contest to select team of three members. Collect record books and send to county or state club office.	Attend. Present achievement buttons, if given.	
County club day.	At close of club work, in February, March, or April.	Arrange. Attend. Have exhibit. Have demonstration team. Have judging team.	Arrange. Secure judges. Direct. Send club reports to state club office. Select team to represent county at Junior Farmers' Week.	

3. The community advisory committee should select a local club leader and an assistant, subject to the approval of the county extension agent, home economics agent, or the county project leader.

4. The community advisory committee and the local club leader should enroll five or more members in the club from the same community who are between ten and twenty-one years of age.

5. The club should be organized by the members under the direction of the local club leader by electing a club president, vice-president, and secretary from the membership of the club.

6. The enrollment blank should be filled out in full by the local club leader and forwarded to the county extension agent, or if there is none, direct to the State Club Office, College of Agriculture, Columbia, Missouri.

7. Upon receipt of the club enrollment at the State Club Office, a grain judging circular and a record book for every member will be mailed to the local club leader through the county agent's office, or if there is none, direct to the local club leader.

8. Six or more regular club meetings should be held.

9. The club work for the year should close with a local achievement exercise.

10. All the club record books and the secretary's report for the year should be sent to the county extension agent by the local club leader or if there is none, direct to the state club office. These record books will be returned to the local club leader for the club members after the records are copied off.

### MEETINGS

Standard clubs are required to hold at least six regular meetings during the club year. These meetings may be held as often as the local club leader and the members desire.

Below are subjects suggested for a number of club meetings. It may be necessary to devote two or more meetings to some of the subjects. It is suggested that in as far as possible these subjects should be followed in the order named. Local club leaders and clubs are expected to select and adapt these subjects to local community conditions.

### SUGGESTED SUBJECTS OF MEETINGS FOR THE CLUB YEAR

- I. Organization of the club.
- II. Collection of plant and seed specimens for study, for use in judging, and for exhibits.
- III. Identification of varieties of dent corn, storage of seed corn, and judging single and ten-ear samples of corn.

- IV. Identification of common types of winter wheat, and judging wheat.
- V. Judging oats.
- VI. Identification of common varieties of soybeans and cowpeas, and judging soybeans and cowpeas.
- VII. Identification of common varieties of grasses, clovers, and other small seeds, and judging small seeds.
- VIII. Making a germination test of seed corn.
- IX. Making a germination test of some small seeds.
- X. Training members for public demonstration work.
- XI. Conducting the local achievement program, making an exhibit, conducting a judging contest to select a team of three members, and conducting a demonstration contest to select a team of two or three members.

## I. Organization of the Club

### SUGGESTIVE PROGRAMS FOR CLUB MEETINGS

#### First Meeting.—Organization

- A. Organization of the club. The local club leader in charge.
  - (1) The election of a club president, vice-president, and secretary-treasurer from the membership of the club.
  - (2) Explanation of duties of club officers. (See suggestions on parliamentary procedure).
  - (3) Explanation of club requirements. See "Standard Club" requirements, page 3 of Record Book.
  - (4) Explanation of club project requirements. See page 2 of Record Book.
  - (5) Select time and place for regular club meetings.
  - (6) Appointment of a committee on club motto, club goal, club name, etc.
  - (7) Assignment of the following 4-H club pledge to be learned by the next meeting:
 

*"As a true club member, I pledge my head to clearer thinking, my heart to greater loyalty, my hands to larger service, and my health to better living, for my club, my community and my country."*
  - (8) Filling out the enrollment and club organization blank by the local club leader for mailing to the county agent's office, or direct to the State Club Office in non-county agent counties, for club circulars and record books in the grain judging project and for club song books and other supplies.

### Second Meeting

- A. The Business Meeting. The club president in charge.
- (1) The club meeting called to order by the chairman who leads the members in repeating the 4-H club pledge.
  - (2) Roll call by the secretary, the club members responding by naming the seeds that are grown on their home farms.
  - (3) Reading and adoption by the club of the minutes of the last meeting.
  - (4) Old business.—Report of the committee on club motto, club goal and club name.
  - (5) New business.—(a) Selection of a club song and yell leader from the membership of the club. (b) Suggestions for the good of the club.
  - (6) Adjournment for work.
- B. Instructions.—The local club leader in charge.
- (1) Distribution of the grain judging circulars and record books with an explanation of their use.
  - (2) An explanation of the club events for the year, viz: collection of samples for judging and identification work, club demonstration work, the local judging contest, and achievement exercise, the county judging contest by teams of three members each from the club, the demonstration contest, and Junior Farmers' Week at the College of Agriculture, etc.
  - (3) An explanation of how the members should proceed in making a collection of grains, heads, stalks, etc., for exhibits, judging and identification purposes.
  - (4) Assignment of topics for response to roll call.

### Suggestive Order of Business for Other Grain Judging Club Meetings

- A. The Business Meeting—The club president in charge.
- (1) Meeting called to order by the president, who leads the club in repeating the club pledge:  
*“As a true club member, I pledge my head to clearer thinking, my heart to greater loyalty, my hands to larger service, and my health to better living, for my club, my community and my country.”*
  - (2) Roll call by the secretary, the members responding by reporting on an assigned topic. (See list below).
  - (3) Reading of the minutes of the last meeting by the secretary, which should be adopted when approved by the club.
  - (4) Old business.—(a) Unfinished business from the last meeting.  
(b) Report of committees.
  - (5) New business.—(a) Appointment of committees. (b) Anything for the good of the club.

- (6) Songs and yells, with the song and yell leader in charge.
- (7) Adjournment for work.
- B. Instructions and Demonstrations.—The local club leader in charge.
  - (1) Discussion of the subject or demonstration of the practical problem under consideration for the meeting.
  - (2) Assignment of work for the next meeting.
  - (3) Assignment of topic for response to roll call.

### SUGGESTIONS FOR ROLL CALL

Naming the seeds that are to be judged and identified by the club.

Naming the varieties of soybeans best adapted to the county.

Giving at least two arguments in favor of testing seeds before planting.

Stating three or more things that can be learned from an exhibit of seeds.

Naming the main varieties of wheat grown in Missouri.

Naming the main varieties of oats grown in Missouri.

Naming kinds of weed seeds most often found in collections of seeds.

Stating three purposes of a demonstration.

Stating three purposes of a judging contest.

Other subjects to be suggested by the local club leader.

## II. Collection of Plant and Seed Specimens

### METHODS AND MATERIALS

It is suggested that each grain judging club make as complete a collection as possible of plant and seed specimens for comparative study, for use in judging work, and for exhibits. Plant specimens usually can be preserved best when mounted on cardboard or tied up in bundles. Seeds can be stored in cans or boxes and labeled for safe keeping.

**Corn.**—The club should make a collection of six or more stalks of corn for the purpose of making a study of roots, tap roots, thickness of stalks, blades, position of ears etc.; and also a collection should be made of at least three ten-ear samples of white corn and three ten-ear samples of yellow corn.

**Wheat.**—The club should make a collection of 50 heads of bearded wheat and 50 heads of beardless wheat for the purpose of studying the characteristics of the heads and the color of the chaff. At least a quart of kernels of each variety of wheat should be collected for use in making a study of the characteristics of each variety, and for use in judging work.

**Oats.**—The club should collect 50 heads of common oats and 50 heads of mane or side oats. At least one quart of threshed oats of each variety should be collected.

**Soybeans and Cowpeas.**—The club should make a collection of the different varieties of soybeans and cowpeas grown in the local com-

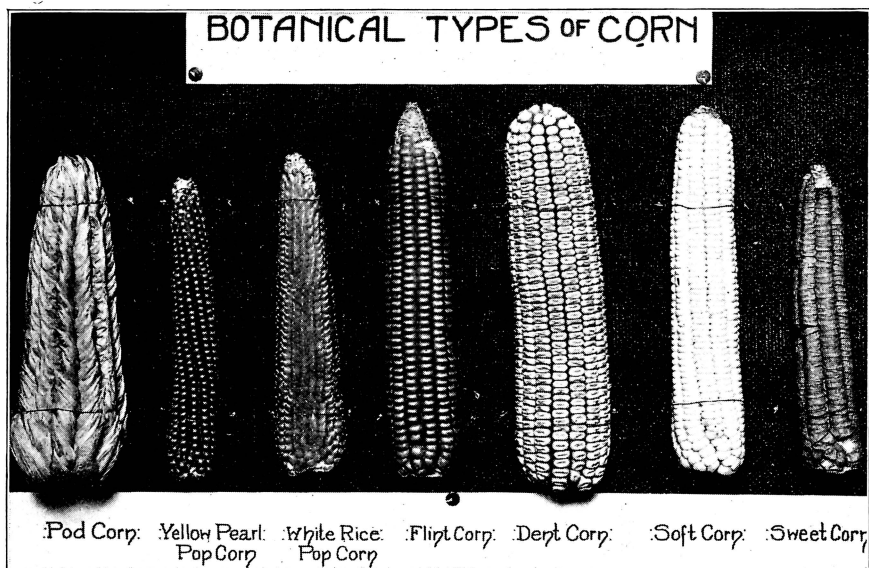


munity. If possible, five complete plant specimens and at least one quart of each variety of seeds should be collected.

**Grasses, Clovers and Other Small Seeds.**—The club should make a collection of plant and seed specimens of grasses and small legumes. If possible, one pint or more of each variety of small seeds should be collected.

### III. Corn

The club members should learn to identify the varieties of dent corn, should make a study of the selection and storage of seed corn, should learn to judge single and ten-ear samples of corn, and should make germination tests of seed corn for spring planting.



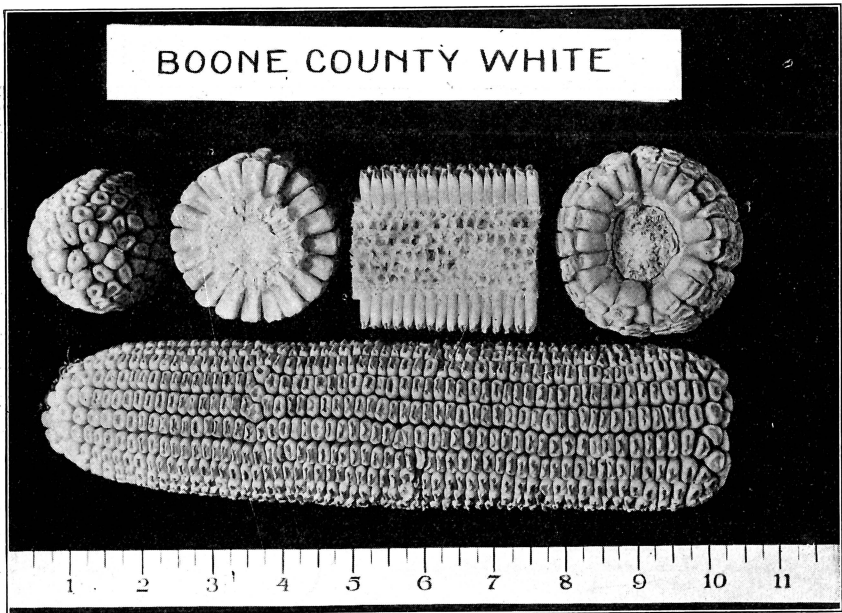
#### VARIETIES OF CORN

There are six types of corn, from which many varieties have been developed. Learn the names of the types of corn.

The most important of these types is the dent corn of which a large number of varieties have been developed. Sweet corn is the type grown in the corn belt which includes Iowa, Illinois, Indiana, Ohio, Missouri, Kansas and Nebraska. This type requires a long growing season but yields much heavier than any other.

The leading varieties of dent corn grown in Missouri are Boone and Johnson County White, St. Charles White, Silvermine and Reid's Yellow Dent. Descriptions of three of these varieties follow:

**Boone County White.**—The Boone County White corn was originated by James Riley of Boone County, Indiana. He began work in 1876, using as a basis a large, coarse, late-maturing variety of corn known as White Mastodon. The selections from the White Mastodon corn were planted in a separate field and from that time on were never allowed to mix with other varieties of corn. Mr. Riley selected a smaller,



earlier maturing ear than was prevalent in the White Mastodon and as a result of persistent work he secured earlier maturity, deepened the grain, and increased the proportion of corn to the cob. The new variety was named for the originator's home county, Boone County.

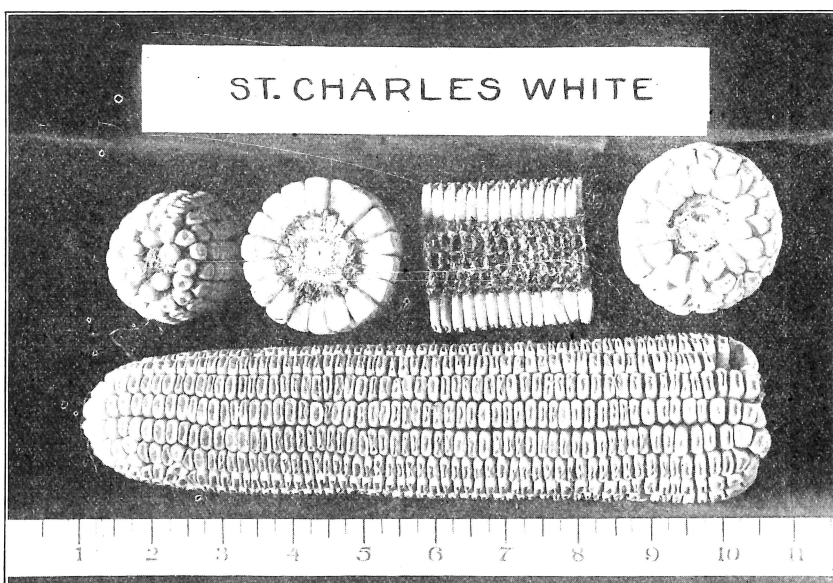
About three years after Mr. Riley distributed the Boone County White among the farmers, O. C. Block began breeding it. He is perhaps the best known breeder of this corn after its originator. Block deepened the kernel materially, increased the roughness, and also the circumference in proportion to the length.

This variety of corn is one of the most prominent in Missouri.

It is grown very largely along the Missouri and Mississippi river bottoms and the better uplands of the state.

The standard of Boone County White is, ears  $10\frac{1}{2}$  to 11 inches long and  $7\frac{1}{2}$  to 8 inches in circumference. The ears should be nearly cylindrical, with an average of 16 to 20 straight rows of kernels. The cob is white in color and rather large; the kernels medium to wide, rather thick and of medium depth. The germ is generally large and bright. The indentation varies, as a result of the work of different breeders, from a smooth-dimple to a short beak.

Boone County White is a medium late maturing variety requiring from 130 to 135 days for complete ripening. The stalks are strong and

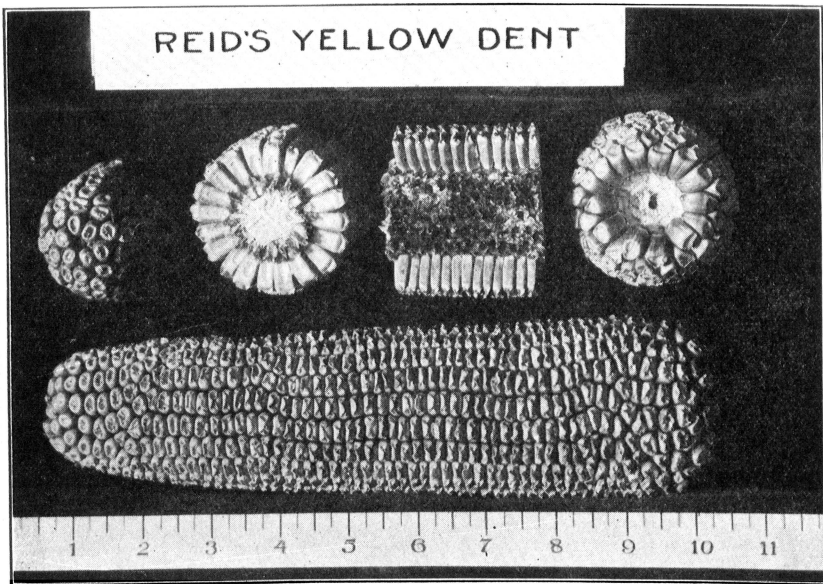


thick and grow in Missouri to an average height of about  $8\frac{1}{2}$  feet. They are leafy and make good silage and fodder. The corn matures well in the field, with a very high percentage of marketable ears.

**St. Charles White.**—The St. Charles White is a native of Missouri, having been developed in St. Charles County where it has been grown for a great many years. It is one of the most popular varieties in the southeastern section of the state and hundreds of bushels are shipped to the Southern States each year, where it is widely grown. Its popularity in the South is due to its milling qualities. Much seed is shipped East and North where this variety is grown and used as a silage corn.

The ears taper somewhat from butt to tip, with rows straight and slightly paired. The butts are moderately rounded, and the tips tend to be well covered with fairly deep kernels. The cobs differ from other white varieties by being bright red in color.

The standard ear is  $9\frac{1}{2}$  to 10 inches in length and  $7\frac{1}{4}$  to  $7\frac{1}{2}$  inches in circumference. The kernels are of medium breadth and of good depth. They are, however, only slightly wedge-shaped, therefore, not closely spaced at the top. They show a large percentage of horny starch, medium to large germs, and are deep to crumple-creased in indentation. The kernels are pearly white in color.



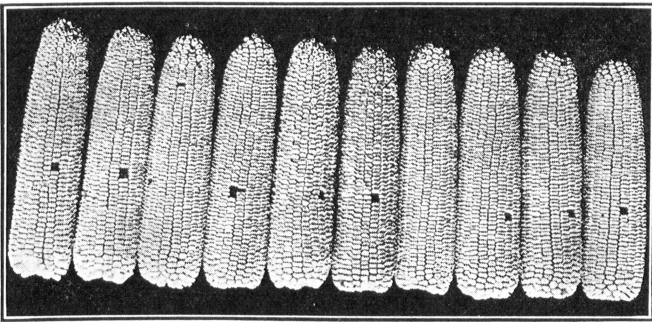
St. Charles White is a late maturing variety averaging 135 to 140 days for complete maturity. The stalks make a rank growth and are somewhat taller than Boone County White. The stalks range from  $8\frac{1}{2}$  to 9½ feet in height. The leaves are broader than those of the Boone County White. The St. Charles is an excellent silage corn.

**Reid's Yellow Dent.**—In 1846, Robert Reid brought from Brown County Ohio, to Illinois, a variety of corn known as the Gordon Hopkins Corn. It is a reddish colored corn, grown widely in the vicinity of Red Oak settlement, the home of Robert Reid. Seed was selected from this crop for the next year's planting. On account of its immaturity a poor stand was the result, so the missing hills were replanted with seed of a

small yellow corn. The cross with yellow corn was purely accidental. The result was the beginning of the Reid's Yellow Dent we know today.

James L. Reid, son of Robert Reid, was the first to recognize the real merits of the new corn and at once began to improve it by selection. Since 1847 the corn has not been crossed by Mr. Reid. Fifty years of continued careful selection has firmly fixed the characteristics of this corn.

The standard for Reid's Yellow Dent is ears  $9\frac{1}{2}$  to  $10\frac{1}{2}$  inches long and  $7\frac{1}{4}$  to  $7\frac{1}{2}$  inches in circumference. The rows of kernels should be straight and the most closely spaced of any variety. The cob is rather small and dark red in color. The kernels are narrow to medium in width, slightly wedged, and a lemon yellow in color. The germs are often small, while the indentation ranges from a creased dimple to a crumpled crease, as a result of the work of different breeders.



A Prize-winning Sample

Reid's Yellow Dent is a medium early maturing variety requiring 125 to 130 days for complete ripening. It averages about 8 feet in height and is only medium leafy. It has a decided tendency to mature soundly and is best adapted to land above medium fertility.

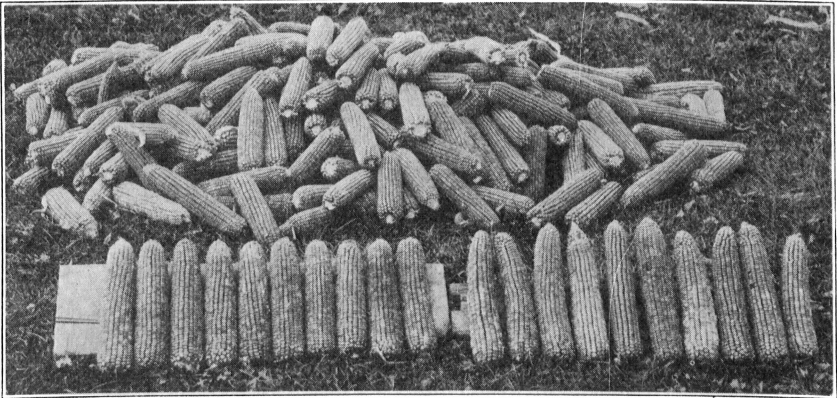
## JUDGING CORN

At fairs and other places where corn is shown for premiums, ten ears usually constitute the sample for exhibition. In judging the ten ears must be considered as a whole. Each ear should match each other ear as nearly as possible; in other words, ears selected for exhibition or for seed should be uniform in size, shape, color, length and indentation; have good germs, straight rows, good butts and tips and medium sized cobs.

The object of the work in this club is to teach members to judge and score grains; corn, wheat and oats. The score card will aid members to

fix in mind the important things which make up a standard sample.

In spelling ten words, ten points are taken off for each misspelled word. Similarly, in scoring a sample of corn, so many points are taken off for each imperfection. For example, on the score card, 15 points are given "character of germs" for perfect. Cut or take off from  $\frac{1}{4}$  to  $1\frac{1}{2}$  points for each ear having poor germs. Ten points are given "length of ears" for perfect. Cut according to how much the sample is greater or less than the length named as standard. Five points are given for perfect tips. Cut from  $\frac{1}{4}$  to  $\frac{1}{2}$  point for each defective tip. Do the same for butts and size of cob. When you have scored a sample of ten ears (taken as a whole) add the points and find the total.



Select Uniform Ears for Sample

Score at least ten samples of corn. Much practice with the score card will teach members to recognize the perfections and imperfections in a sample of corn.

The same general procedure is followed with the score card for wheat and oats.

### WHERE TO GET GOOD SEED CORN

Usually the best place for a farmer to secure good seed corn is either from the fields on his farm or from farms in his neighborhood which were planted with pure seed of a variety that has proven successful in the locality.

Good seed must be:

1. Well adapted to the climate and soil where it is planted.
2. Of a high yielding variety and from the best stalks of that variety.

**CORN SCORE CARD—TEN-EAR SAMPLE**

Scale of Points	No. of Sample				
	1	2	3	4	5
Trueness to type and breed characteristics—					
1. Uniformity of type.....10					
2. Shape of ears.....5					
3. Length of ears.....10					
4. Circumference of ears.....5					
5. Purity of kernel.....5					
6. Purity of cob.....5					
-----					
40					
Maturity and market condition—					
7. Maturity.....10					
8. Market condition.....5					
-----					
15					
Yielding qualities and vitality—					
9. Character of germs.....15					
10. Shape of kernels.....10					
11. Uniformity of kernels.....5					
12. Butts.....5					
13. Tips.....5					
14. Size of cob.....5					
-----					
45					
-----					
Total.....100					

**VARIETY STANDARDS**

	Length	Circumference
<i>Yellow</i>		
Reid's Yellow Dent.....	9½ to 10½	7¼ to 7½
Leaming.....	10 to 10½	7½ to 7¾
St. Charles Yellow.....	10½ to 11	7¼ to 7¾
Cartner.....	9 to 9½	7¼ to 7½
<i>White</i>		
Boone County White.....	10½ to 11	7½ to 7¾
St. Charles White.....	10 to 10½	7¼ to 7½
Johnson County White.....	10½ to 11	7½ to 7¾
Silvermine.....	9 to 9½	7 to 7¼
Commercial White.....	10½ to 11	7½ to 7¾
General Entries.....	9½ to 10½	7¼ to 7¾

3. Well matured and taken care of from ripening until planting time in such a way that it will retain its full productivity.

### GATHERING SEED CORN

The best time to select corn is while the ears are on the stalks in the field. This gives a chance to select for desirable plants as well as good ears. This should be done as soon as the ears are ripe, and before the first hard freeze.

Select ears from stalks that have produced the most good corn under ordinary conditions. There should be no missing hills near it. Early maturing, well-shaped ears which are grown at a convenient height are to be preferred. Only ears which have a fairly short shank and which have a tendency to hang down should be selected. Such ears shed water better, and lessen the chances for injury from weather. Short, thick stalks with a good root system usually are more productive, and less easily blown down. They tend to produce ears at a better height and of earlier maturity.

### SUGGESTIONS FOR SOMETHING TO DO

Select ten ears of corn of the same variety. These should be as nearly uniform in size, shape, color, length and market condition as possible. Take these ears to the Club meeting. Compare with ears brought by other members.

Find some ears of corn having as good butts and tips as those in the picture (page 13). Pick out as many ears from your sample as you can which have proper size, shape, length and indentation. Does the surface of your ears look like that in the picture? Are the rows straight? Are the tips well filled? Are the grains of the proper size and shape? Are there any mixed grains on the ears?

Make a corn crop survey of your Club. How many raise St. Charles White? Boone County White? Reid's Yellow Dent? And so on. How many acres raised by each? Estimate number of bushels grown by each.

Study carefully the score card for corn and when you understand it, score the ten-ear sample.

Place four ten-ear samples on a table or board and number them 1, 2, 3, 4. Select the best sample and write the reasons why you think it is best. Select the second best, the third best, and write your reasons for the selections.

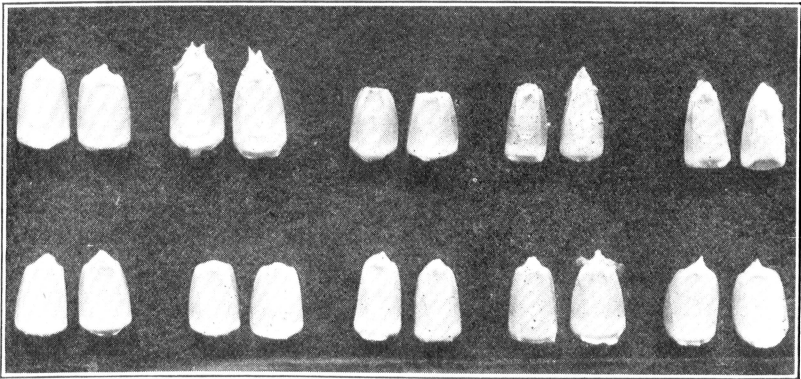
### DRYING IMPORTANT

Field selected seed corn must be dried properly or its vitality may be reduced. Corn as it comes from the field sometimes contains 20 to 30



per cent moisture. This moisture in the kernels, together with some moisture in the cobs, may cause the ears to begin to mildew in a very short time. If seed corn is allowed to freeze with moisture in it, its vitality is sure to be lowered.

All good looking ears of corn do not prove to be good seed. When ears of corn are shelled the kernels should be inspected closely. The kernels should be uniform in size and have a large smooth germ. In the cut on this page the top row are kernels commonly found in seedcorn, but which are not considered good. Those on the lower row are good kernels. Note the size and shape of the kernels. Also the large smooth germs.



Good dryers can easily and cheaply be made by nailing laths to boards one inch thick and six inches wide, or by driving nails through. Any dryer is good which will allow a free circulation around all the ears of corn.

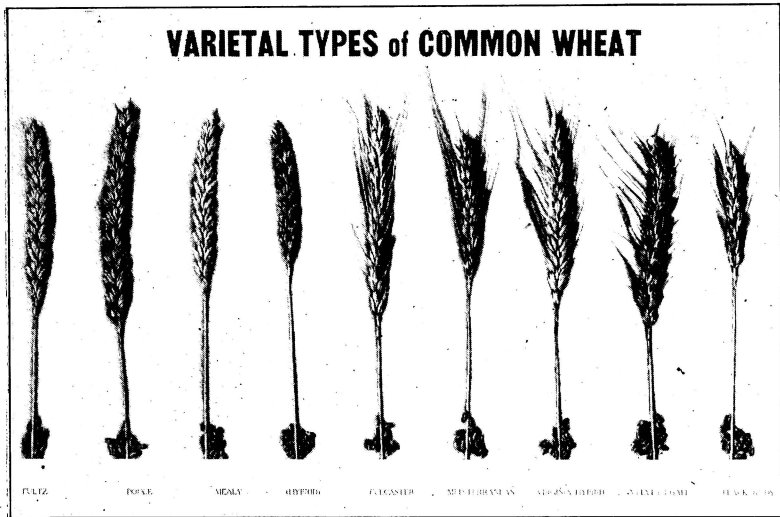
### STORE SEED CORN PROPERLY

After the seed corn becomes thoroughly dry it can be left on the dryers for the winter, but usually it is better to store it away. In this case it should be put in a dry place such as an attic, barn loft, garage, unused room in the house, or in any well ventilated building on the farm. Never store seed corn near or above livestock where the air is moist, for it may absorb enough moisture to be injured by freezing.

## IV. Wheat

### VARIETIES OF WHEAT

The varieties of common wheat in this country are divided into two general groups, winter wheat and spring wheat, depending upon whether the crop is seeded in the fall or in the spring. With the exception of a small acreage of spring wheat grown in North Missouri, the wheat crop of this state is made up of the group called winter wheat.



There are many varieties of winter wheat but the most important ones in Missouri are the following:

**Poole.**—A variety of soft winter wheat with red kernels, beardless heads, and red or brownish hulls. (Second, in the illustration.)

**Fulcaster.**—A variety of soft winter wheat which is often classed as semi-hard. It has hard red kernels, white chaff, and bearded heads. (Fifth, in the illustration.)

**Mediterranean.**—A variety of soft winter wheat with red kernels, red or brownish chaff, and bearded heads. (Sixth, in the illustration.)

**Fultz.**—A variety of soft winter wheat with red kernels, white chaff, and beardless heads. (First, in the illustration.)

**Turkey.**—A variety of hard winter wheat with every hard red kernels, white or yellow chaff, and bearded heads. The Turkey succeeds well in

Missouri only in seasons preceded by extremely hard winters. It is therefore better adapted to North Missouri than to other parts of the state. In average seasons the varieties of soft or semi-hard wheat will outyield the Turkey.

**JUDGING WHEAT**

In this club work a sample of wheat consists of at least one-half pint. Take a handful of grain as it comes from the sample and spread or scatter it on a board or table. With a knife blade count out 100 grains just as they come, including, but not counting every particle of foreign matter, broken grains or other seeds. The score is to be made from this sample of 100 grains and foreign matter. Three such samples from the same bin should be taken and scored, the average of the three to be the final score.

**SCORE CARD FOR WHEAT**

Scale of Points	Sample Number					
	1	2	3	4	5	6
1. Foreign matter, conforming to standard ..... 10						
2. Color and purity ..... 15						
3. Size and shape ..... 15						
4. Plumpness ..... 10						
5. Hardness ..... 15						
6. Soundness ..... 20						
7. Weight per Bushel ..... 15						
Total ..... 100						

1. **Foreign matter (10):** Cut 1 point for each weed seed found in the sample and ½ point for each particle of other foreign matter.
2. **Color and purity (15):** Cut 1 point for each grain in the sample that is distinctly "off color" from the average.
3. **Size and shape (15):** Cut 1 point for every grain decidedly different in size and shape from the average.
4. **Plumpness (10):** Cut ½ point for each grain that is shriveled or of poor shape.
5. **Hardness (15):** For each kernel showing a distinctly white cross-section, cut 1 point.
6. **Soundness (20):** Cut 1 point for every grain showing unsoundness.
7. **Weight per bushel (15):** A gallon of wheat should weigh 7½ pounds. Cut 4 points for every ¼ pound less than 7½ pounds. Add 1 point for every ¼ pound more than 7½ pounds.

### SUGGESTIONS FOR SOMETHING TO DO

Collect a small sample of wheat, at least two hundred grains. Of what variety is the sample? What percentage of the grains are perfect? What percentage of the grains are damaged? Score the sample according to directions. How much does it score?

Explain the difference between Poole and Fulcaster. Between Fultz and Turkey. Which variety is best suited to Missouri soils and climate?

Collect samples of as many different varieties of wheat as you can find in your district. Put each sample in a bottle and label it. Score at least five samples of wheat according to the directions on the score card.



Two Samples of Wheat.—At left, high-grade; at right, low-grade.

## V. Oats

### JUDGING OATS

A good sample of oats must be pure, must be free from foreign matter such as dirt, sticks, and chaff; must be sweet, not musty or dusty; and must be seed that will germinate.

The score card trains one to observe the points that make up a good sample of oats. The same method of procedure is to be used as in the case of corn and wheat.

**SCORE CARD FOR OATS**

Scale of Points	Sample Number					
	1	2	3	4	5	6
1. Foreign matter..... 15						
2. Color..... 10						
3. Uniformity, length and shape... 10						
4. Quality, size and plumpness.... 20						
5. Damaged grain..... 15						
6. Weight per bushel..... 30						
Total..... 100						

1. **Foreign matter (15):** Cut 2 points for every weed seed and 1 point for each particle of other foreign matter present.

2. **Color (10):** Cut 1 point for every two grains found off color.

3. **Length and shape (10):** Cut 1 point for every three grains differing greatly from the average.

4. **Size and plumpness (20):** Cut 1 point for every two grains found to be empty hulls, shrunken or light kernels.

5. **Damaged grains (15):** Cut 1 point for every damaged grain found in your sample.

6. **Weight per bushel (30):** A gallon of oats should weigh 4 pounds. Cut 4 points for every  $\frac{1}{4}$  pound less than 4 pounds.

**SUGGESTIONS FOR SOMETHING TO DO**

Collect a sample of at least one pint of oats. Are they red or white? What percentage of the grains are damaged? Score the sample according to the score card. What is the score?

Each member of the club should collect as many different varieties of oats as are found in the district. Place each sample in a bottle and label it.

Score at least five samples of oats according to directions.

## VI. Soybeans and Cowpeas

### SOYBEANS

Club members should learn to identify and judge as many as possible of the following five named varieties of soybeans: Morse, Midwest, Haberlandt, Wilson and Virginia.

Where grown for hay alone, the Wilson and the Virginia are probably the better ones, with the Virginia showing up especially well both for hay and for seed on the poorer lands of the southern half of the state. For seed, for hogging down in corn, and even for hay, the other three varieties are extensively used. Samples of seed of each of these varieties should be secured and studied so that they may be identified.

### COWPEAS

The following named varieties of cowpeas are recommended for study: New Era, Whippoorwill, Black Eye and Early Ramshorn.

#### SCORE CARD FOR SOYBEANS AND COWPEAS

Scale of Points	Per- fect Score	Score of Sample							
		1	2	3	4	5	6	7	8
<b>Uniformity—</b>									
Size & Shape	10								
Color	15								
<b>Quality—</b>									
Purity	25								
Percentage for- eign matter	15								
Percentage cracked beans	15								
Market condi- tions	20								
Total Score	100								

1. **Size and shape (10).** All grains in the sample should be approximately the same size and shape. Cut from one to ten points depending upon the percentage of grains in the sample which are distinctly off size or shape.

2. **Color (15).** The color should be true to the variety. Sample should be bright and free from weathered or otherwise discolored grains

such as might be caused from immaturity. Cut 1 point for each estimated two per cent found off color.

**3. Purity (25).** Sample should be pure, that is free from grains of other varieties, as indicated by grains of other colors, or of distinctly different shapes. Cut five points for each per cent of other varieties in sample.

**4. Percentage foreign matter. (15).** Sample should be free from all weed seed, dirt, and other foreign matter. Cut one point for each estimated per cent of weed seed and for each two per cent of other foreign matter found.

**5. Percentage cracked beans (15).** Cut one point for each two broken pieces of beans of any considerable size found in sample of 100 grains and pieces counted out together.

**6. Market condition (20).** Sample should be dry and sweet, and free from mould, rotten beans, sprouted beans, and the like. If sample is damp, mouldy, contains rotten beans or is otherwise off in market condition cut from one to twenty points depending upon the extent of seriousness of the injury. Samples containing dead weevils should be cut heavily in scoring. If live weevils are present the sample should be barred from the class.

## VII. Grasses and Small Legume Seeds

Club members should make a study of as many as possible of the following named grasses and small legume seed: Alfalfa, red clover, alsike clover, white clover, and sweet clover. Kentucky bluegrass, redtop, orchard grass and timothy.

**1. Color (10).** Color should be uniform throughout the sample. Thus dark-colored seeds in a sample of clover or alfalfa indicate adulteration with old seeds. Cut from one to ten points depending upon the lack of uniformity in color.

**2. Size, shape, etc. (10).** All seeds should have approximately the same size, shape and general appearance.

**3. Brightness (10).** Seeds should be bright, lustrous, and free from discoloration or weathering.

**4. Percentage weed seed (25).** The sample should be free as possible from all weed seed. Cut two points for each per cent of common weed seed and five points for each per cent of noxious weed seed found.

**5. Percentage dirt, trash, etc. (15).** Cut one point for each per cent of dirt, trash, etc. found in sample.

**6. Purity (20).** Cut two points for each per cent of other grass or legume seed found in the sample, or of seed of other varieties of the same grass or legume if this can be determined.

7. **Market condition (10).** Seed sample should be free from cracked or otherwise injured seeds, should be dry, sweet, and free from molds, mustiness and the like. Seeds containing dead weevil should be cut heavily in scoring, and if live weevil are present the seed should be discarded entirely.

### SCORE CARD FOR GRASSES AND SMALL LEGUME SEEDS

Scale of Points	Per- fect Score	Score of Samples							
		1	2	3	4	5	6	7	8
<b>Uniformity—</b>									
Color .....	10	-----	-----	-----	-----	-----	-----	-----	-----
Size, shape, etc.	10	-----	-----	-----	-----	-----	-----	-----	-----
<b>Quality—</b>									
Brightness.....	10	-----	-----	-----	-----	-----	-----	-----	-----
Percentage weed seed ..	25	-----	-----	-----	-----	-----	-----	-----	-----
Percentage dirt, trash etc.....	15	-----	-----	-----	-----	-----	-----	-----	-----
Purity .....	20	-----	-----	-----	-----	-----	-----	-----	-----
Market condi- tion .....	10	-----	-----	-----	-----	-----	-----	-----	-----
Total Score....	100	-----	-----	-----	-----	-----	-----	-----	-----

## VIII. Making a Germination Test of Seed Corn

Reference: "How to Test Seed Corn", by J. C. Hackleman, Circular 48, Agricultural Extension Service of the Missouri College of Agriculture, Columbia, Missouri.

## IX. Making a Germination Test of Small Seeds

It is a common practice among the best farmers of Missouri to purchase small seeds only after a reliable germination test has been made. Inferior seeds of a low or uncertain germination quality usually can be purchased for less money than good seeds, however, good seeds are always cheaper in the end.

The ability of grass seed to germinate may be determined by weight. Good bluegrass seed, for instance, should weigh about 20 pounds per bushel. Inferior seed often is very light because the seed is undeveloped



and has a large amount of chaff in it. Most of the bluegrass seed on the market is of low vitality due to the method of harvesting and curing commonly practiced by seed growers. Bluegrass seed cannot be threshed with an ordinary thresher but instead usually is gathered by stripping by hand or with specially constructed machines. In view of these facts it is necessary that samples of such seeds be tested before purchasing. Bluegrass seed should test 50 per cent or more.

Also, it is a good practice as a general rule, not to purchase small seeds that have more than 2 per cent of impurities in them, such as weed seeds, mixed seeds, broken seeds, etc. The percentage of impurities can be determined by counting.

Small seeds of all kinds may be tested by the following method:

1. Place 100 seeds between cloths or blotting paper and keep them moist and in a warm place.
2. After five or six days the seeds will have germinated and may be examined and the good ones determined.

## X. Demonstrations

So far as possible, all club members should be instructed in the regular club meetings by the demonstration method. As a usual thing one or more members of each club can begin doing useful phases of the work program before the club soon after the processes have been demonstrated by the club leader.

After two or three months of practical experience in handling real things, all mature club members should be able to give public team demonstrations. The scope of the team demonstration usually should be limited to the essential processes of some phase of the club work of the current year on one subject. A team of two or three of the best demonstrators, according to the number needed, should be selected from the membership of one club, either by mutual consent or by competition. All teams should have an opportunity to demonstrate before the local club group and the people of the home community, and the championship team should represent the local club at the county round-up.

### **SUGGESTIVE DEMONSTRATIONS FOR INDIVIDUAL CLUB MEMBERS TO GIVE AT REGULAR CLUB MEETINGS**

- (1) How to judge corn.
- (2) How to select seed corn from the standing stalk.
- (3) How to store seed corn.
- (4) How to identify the different varieties of corn and of small seeds.
- (5) How to clean small seeds of impurities.
- (6) How to determine percentage of impurity in small seeds.
- (7) How to identify weed seed and impurities in small seeds.
- (8) How to arrange an effective exhibit of plant and seed specimens.
- (9) How to make a simple germination test, etc.

## SUGGESTIVE TYPICAL OUTLINE FOR A TEAM DEMONSTRATION

### Testing Seed Corn By Use of the Rag Doll Germinator

Reference.—“How to Test Seed Corn”, by J. C. Hackleman, Circular 48, Missouri College of Agriculture, Columbia, Missouri.

Requirements.—The following are necessary for a successful demonstration:

Two members from one club, designated as demonstrator “A” and demonstrator “B”.

1 piece of muslin 18 inches by 2 feet (For 10 ears).

1 yard stick.

1 pencil

1 knife.

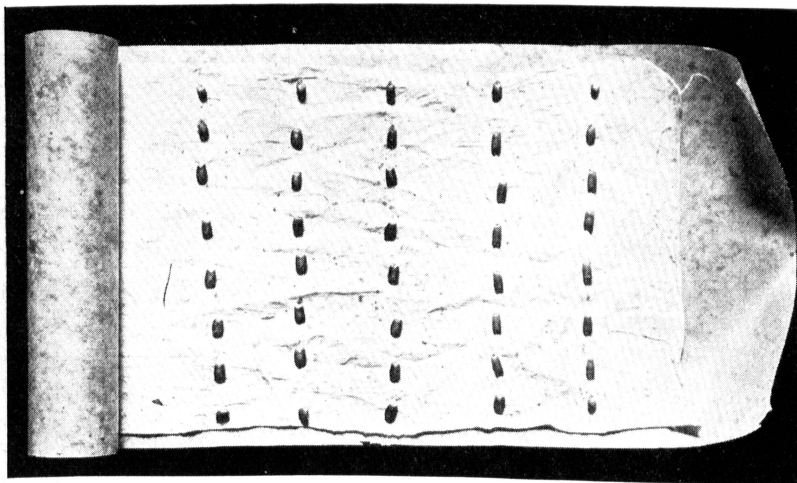
10 ears of corn.

1 rag doll tester that contains germinated kernels.

1 bucket; some warm water.

10 cards with pins to number ears.

1 blackboard and chalk or large cardboard.



Kernels of Corn Placed on Strip of Muslin Forming Rag-doll Tester

**A****A speaks**

**A** addresses the audience, and in a sentence tells something about the club, introduces the team, and leads in repeating the 4-H club pledge.

**A speaks**

1. *Explains briefly "Testing for Germination."*
  - (1) Its importance.
  - (2) Value of this method in discovering root-rot infection in the ears.
  - (3) Brief explanation of kinds of tests.
    - a. Some commercial tests heated by lamps or electricity.
    - b. Old incubators.
    - c. Dinner plate tester.
    - d. Sand box germinator.
    - e. Sawdust box germinator.
    - f. Rag doll germinator.

My team mate will now demonstrate and explain how to make and use the rag doll germinator, since it is the most common kind now in use.

**A works**

Assists in making tester as **B** explains the process and its purposes.

**B**

**B** stands at attention until after being introduced, and then joins in repeating the club pledge.

**B works**

Quietly gets demonstration materials ready for making the rag doll germinator.

**B speaks**

2. *Demonstrates and explains briefly "The Steps in Making and Using a Rag Doll Germinator:"*
  - (1) Marks off two rows of 3-inch squares, 5 squares to the row, down the middle of the cloth. Explains.
  - (2) Numbers the squares consecu-

- tively so as to identify the kernels. Explains.
- (3) Numbers the ears to correspond to the numbers on the cloth. Explains.
  - (4) Removes six kernels from each ear and places same on corresponding numbers on the cloth. Explains.
  - (5) Folds over sides and ends of cloth and then rolls up cloth firmly. Explains.
  - (6) Sprinkles or immerses the rag doll germinator in a bucket of warm water. Explains.
  - (7) Places the rag doll germinator in a warm place, but so as to keep it moist. Explains.

After six or seven days, we shall unroll rag doll germinator and examine results. My team-mate will now interpret and explain what the germination test shows.

---

### A speaks

3. *Interprets the Results Through Use of a Six or Seven-Day-Old Germination Test.* (Uses blackboard.)

- (1) Examines kernels and reports results.
- (2) Shows how 100 per cent germi-

---

### B works

Holds up exhibits as they are interpreted by A.

nation test indicates best ears to plant.

- (3) Explains why ears with two or more dead kernels should not be planted.
- (4) Explains why ears that were slow in germinating should be discarded, etc.

### **A works**

Quietly collects all demonstration materials and cleans up the demonstration table.

### **A speaks**

Asks for questions.

Leads in giving a spirited club song or yell. Concludes the demonstration by thanking the audience for its attention.

### **B speaks**

4. *Summarizes by Stating Briefly Five Reasons for Testing.* (Uses blackboard).

- (1) Average stand in Missouri.
- (2) Average gain in stand by testing.
- (3) Average number of bushels gained by testing.
- (4) Average cost of testing.
- (5) Conclusion.

**B** stands at attention.

Joins with **A** in giving the club song or yell.

**SCORE CARD FOR JUDGING DEMONSTRATION TEAMS**

	Perfect Score	Actual Score
<b>1. Subject Matter</b> .....	30	.....
(1) Importance of the subject matter presented and relation to fundamental problems of home or farm.		
(2) Accuracy of statements made in oral presentation and proper methods in doing the work.		
(3) Completeness with reference to the giving of all steps necessary to clear understanding of process.		
(4) Clearness and definiteness of statements made in simple language easily understood.		
(5) Replies to practical questions. Judges' questions only should be considered in team scores. Team should give authority for subject matter presented.		
<b>2. Team Work</b> .....	20	.....
(1) Preparation, arrangement and use of materials. The team will be responsible for the arrangement and preparation of equipment and its use.		
(2) Organization of work, each member in so far as practical to be kept busy with a definite part so that the work and instructions given will proceed without delay, but each member of the team should be able to demonstrate the whole process.		
(3) Appearance and conduct of the team. Appearance and conduct includes the personal appearance of the members, and of the team as a whole. They should be business like, pleasant and so far as possible, a unit in action and appearance.		
(4) The team member not actually directing the demonstration should re-inforce the point at hand or at least should not detract from the theme of the demonstration.		
<b>3. Skill</b> .....	20	.....
(1) Ease in procedure.		
(2) Workmanship and efficiency of manipulation.		
(3) Neatness and cleanliness in doing work.		
(4) Speed, system or dispatch.		
<b>4. Results</b> .....	15	.....
(1) Effect upon the audience, and also upon materials used in the demonstration, as may be shown in the finished product.		
(2) All processes made clear.		
<b>5. Practicability</b> .....	15	.....
(1) Value of principles given for the home and community.		
(2) Actual club practices shown.		
<b>Total Score</b>	100	.....

## XI. The Local Achievement Program

The local achievement program should be held at the close of the club work for the year. If possible, all the clubs of the same community should join in holding one achievement program to which the general public should be invited. This program will vary according to the number of clubs in the community, the kinds of projects worked on, and other local conditions. A local exhibit should be made.

### SUGGESTIVE ACHIEVEMENT CLUB PROGRAM

1. A model club meeting by one of the local clubs.
2. A brief history and a short statement of the club achievements by a representative member of each club, respectively.
3. A demonstration by a team from each club in the community. The champion team in each project should represent the community in the county round-up.
4. Judging contests to select teams to represent the community in the county round-up.
5. A talk on Boys' and Girls' Club work.
6. Awarding of achievement buttons, if given, to all members who hand in to the local club leader a complete record book.
7. Announcement of club plans for the coming year.
8. Adjournment.

(Only club members who make a complete report, or have records up-to-date, should be eligible to take part in the county contests.)

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