

# THE 4-H SOYBEAN CLUB

4-H CLUB CIRCULAR 34

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**COOPERATIVE EXTENSION WORK IN  
AGRICULTURE AND HOME ECONOMICS**

UNIVERSITY OF MISSOURI COLLEGE OF AGRICULTURE AND THE UNITED  
STATES DEPARTMENT OF AGRICULTURE COOPERATING

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# 4-H Soybean Club\*

## PROJECT REQUIREMENTS

**Object.**—The object of the soybean club work is to organize boys and girls into groups for the purpose of demonstrating approved methods of producing and harvesting soybeans for hay, seed and as a catch crop; and to train the members in leadership.

**Work Required.**—Each club member is required to raise at least one acre of soybeans (A five-acre demonstration field is to be preferred), using approved cultural practices, which include proper preparation of seed bed, the growing of one of the five following standard varieties, Morse, Midwest, Haberlandt, Virginia, or Wilson, and harvesting the crop.

**Records Required.**—Each club member is required to keep an accurate account of all operations, expenses and receipts, hours of labor, etc., as called for in the record book furnished by the Extension Service of the Missouri College of Agriculture.

**Ownership Required.**—Each club member is required to own the crop and to be responsible for the demonstration field, and to secure his own seed, fertilizer and any tools necessary for cultivating the crop.

**Time Required.**—Time necessary to produce the crop.

Time for attendance at six or more club meeting.

Time for attending a field meeting.

Time necessary for making a local exhibit.

Time for attendance at an achievement program or round-up at the close of the work for the year.

**Organization.**—The club should be organized in March or April and all reports should be completed by November.

## I—ORGANIZATION OF THE CLUB

A standard soybean club consists of five or more members who are from 10 to 21 years of age and who meet regularly for six or more times with their own officers in charge under the direction of a local club leader. These meetings may be held as often as the local club leader and members desire; however, the meetings usually are held once each month.

\*Prepared by K. G. Harman, Extension Specialist in Field Crops, in collaboration with T. T. Martin, State Club Agent.

Below are suggestions 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 these meetings be followed in the order given. *Local club leaders and clubs are expected to adapt these plans to community conditions.*

### I. ORGANIZATION OF THE CLUB

(See Club Secretary's Record book)

1. The business meeting.—The local club leader in charge.
  - (1). Explanation of the duties of the club officers and members—(See the Club Secretary's Record Book.)
  - (2). Election of club officers from the membership of the club: President, Vice-President, Secretary, Song and Yell Leader and, Reporter.
  - (3). Selection of a name for the club. (It is suggested that the name be selected so as to identify the club and the project.)
  - (4). Selection of a time and place for regular club meetings.
  - (5). Appointment of a committee to work up or select an appropriate song and yell for the club.
  - (6). Adjournment of the business meeting for instruction in club work.
2. Instructions.—The local club leader in charge.
  - (1). Distribution of club circulars and record books and explanation of their uses.
  - (2). Explanation of standard 4-H club requirements. (See the Club Secretary's Record Book.)
  - (3). Explanation of the club project requirements for 4-H Soybean Club work.
  - (4). Setting one or more club goals, as:
    - a. Every member will use the best adapted variety of soybeans.
    - b. Every member will plow his plot at least 30 days before seeding.
    - c. Every member will practice clean cultivation from the time the ground is plowed until the crop is laid by.
  - (5). Discussion of the main club events for the year, as:
    - a. Attending regular meetings, demonstrating approved practices and judging soybeans.
    - b. Holding a field soybean meeting on at least one plot in the community before the crop is harvested.
    - c. Making a local exhibit and attending an achievement program at the close of the year's work.
  - (6). Stating specifically what each member should do to start the work, as:
    - a. Secure seed of adapted variety. The Missouri College of Agriculture recommends the five following named varieties: Morse, Midwest, Wilson, Virginia and Haberlandt. When grown for hay alone, the Wilson and Virginia are to be preferred, with the Virginia especially well adapted for both hay and seed on the poorer lands of the southern half of the state. For seed, for hogging down in corn, and for hay, the other three varieties are extensively used.

- b. Make arrangements to secure inoculation material from the Soils Department of the Missouri College of Agriculture.
  - c. Decide upon the method of planting.  
On good land (land that will grow 40 bushels of corn or more to the acre), drill broadcast with wheat drill. On medium to thin land, drill in rows 30 to 42 inches apart. The thinner the land the closer the rows should be. When planting in rows, plant shallow at the rate of 20 pounds for rows 42 inches apart to 30 pounds for rows 30 inches apart per acre.
  - d. Decide definitely upon the plot of land or field that is to be put into soybeans.
- (7). Assignment of work for the next meeting, as:
- a. Assignment of the 4-H club pledge to be learned by all members before the next meeting. (See the pledge in suggested outline of the second meeting.)
  - b. Bringing the record books to the meeting.
  - c. Assignment of topics for discussion, as:
    - (a). Study purpose of inoculation.
    - (b). Study the two sources of inoculation, commercial cultures and soils from inoculated fields.
    - (c). Study steps used in inoculating with soils and with commercial inoculation.
- References: Inoculation for Legumes.  
Productive Methods for Soybeans in Missouri,  
Page 17.
- d. Assignment of topics to be used in reponse to roll call, as:
    - (a). Give the purpose of inoculation in one sentence.
    - (b). Name the two common methods of inoculation.
    - (c). On basis of an acre, calculate the value of inoculation.
3. The social hour, games, etc.

## II. INOCULATION OF SOYBEANS

1. The business meeting.—The club president in charge.  
Reference: Duties of Club officers: Club Secretary's Record Book, and Club Project Announcement.
- (1). Meeting called to order by the president, who leads the club members in repeating the national 4-H club pledge, as follows: "I pledge my *head* to clearer thinking, my *heart* to greater loyalty, my *hands* to larger service, and my *heart* to better living, for my club, my community, and my country."
  - (2). Roll call by the secretary, the members responding by reporting on the previously assigned topics, or by giving a progress report on the home project work.
  - (3). Reading of the minutes of the last meeting by the secretary, which should be adopted as a permanent record by the club when approved.
  - (4). Unfinished business:
    - a. Unfinished business from the last meeting.
    - b. Report of the committee on club songs and yells.

- (5). New business:
  - a. Appointment of a social committee to plan for some games at future club meetings.
  - b. Anything for the good of the club, such as inviting a well-known grower of soybeans to attend the next club meeting to assist.
- (6). Songs and yells, led by the song and yell leader.
- (7). Adjournment for work.
2. Instructions and demonstrations. The local club leader in charge.
  - (1). Discussion.
    - a. The purpose of inoculation.
    - b. The two sources of inoculation, commercial cultures and soil from inoculated fields.
  - (2). Demonstration. Inoculation with soil and with commercial inoculation.
  - (3). Explanation of how to keep the record book.
  - (4). Assignment of work for the next meeting, including:
    - a. Bringing the record books to the meeting.
    - b. Assignment of topics for discussion, as:
      - (a). Study the score card for judging a team demonstration, page 12.
      - (b). Study the suggested outline for a team demonstration on inoculation of soybeans, page 9.
      - (c). Plan individual demonstrations as try-outs for making the team. Each member may use either the soil method or the commercial culture method of inoculation in his individual demonstration, page 9.  
References: Inoculation of Legumes.  
Productive Methods for Soybeans in Missouri.
  - c. Assignment of topics for roll call, as:
    - (a). In one sentence, tell what a demonstration is.
    - (b). Give two benefits that may be derived from demonstrations.
    - (c). Give usual number of demonstrators on a team.
    - (d). Give the average length of time required to present a team demonstration.
3. The social hour, games, etc.

### III. DEMONSTRATION ON INOCULATION OF SOYBEANS

1. The business meeting.—The club president in charge.
  - (1). Meeting called to order by the president who leads the club repeating the national 4-H club pledge.
  - (2). Roll call by the secretary, the members responding by reporting on the previously assigned topics, or by giving a progress report on the home project work.
  - (3). Reading of the minutes of the last meeting by the Secretary.
  - (4). Unfinished business:
    - a. Unfinished business from the last meeting.
    - b. Report of the social committee.
  - (5). New business:
    - a. Appointment of any special committees.

- b. Anything for the good of the club, plans for each member to talk to some successful grower of soybeans about his methods of work and the results secured.
- (6). Songs and yells.
- (7). Adjournment for work.
- 2. Instructions and demonstrations.—The local leader in charge.
  - (1). Discussion.
    - a. The main points of the score card for judging a team demonstration.
  - (2). Demonstration. Individual demonstration on inoculation of soybeans as try-outs for making the team.
  - (3). Leader assists club members with record books.
  - (4). Assignment of work for the next meeting.
    - a. Bringing the record books to the meeting.
    - b. Study score card for judging soybeans, page 13.  
Reference: Productive Methods for Soybeans in Missouri.
    - c. Assignment of topics for roll call, as:
      - (a). Give method of deciding the purity of soybean seed.
      - (b). State what is meant by uniformity of soybean seed.
      - (c). State what is meant by market condition of soybean seed.
      - (d). Name the five adapted varieties of soybeans for Missouri.  
Tell which are hay beans and which seed beans.
      - (e). Name varieties adapted to hogging down.
- 3. The social hour, games, etc.

#### IV. JUDGING SOYBEANS

- 1. The business meeting.—The club president in charge.
  - (1). Meeting called to order, members repeating the national 4-H club pledge.
  - (2). Roll call, members responding by reporting on the previously assigned topics, or by giving a progress report on the home project work.
  - (3). Unfinished business.
    - a. -----
  - (4). New business.
    - a. The achievement program, plans for conducting it.
  - (5). Songs and yells.
  - (6). Adjournment for work.
- 2. Instructions and demonstrations.—The local club leader in charge.
  - (1). Discussion.
    - a. Judging soybeans.
  - (2). Demonstration. Soybean judging demonstration.
  - (3). Leader assists club members with record books.
  - (4). Assignment of work for the next meeting.
    - a. What each member should prepare to do at the field meeting on the club tour. (About the middle of August)
      - (a). Study how to inspect for results of inoculation.
      - (b). Study how to look for effects of cultivation. (Weeds)
      - (c). Study how to look for effects of cultivation on yield.

- (d). Be prepared to ask the county extension agent or specialist in field crops regarding any special problem while on the club tour.
  - b. Announcement of time, place and routine plans for the club tour.
3. Social hour, games, etc.

#### V. THE CLUB TOUR OR FIELD MEETING

The fifth club meeting.—The county agent in charge.

The club members, the county extension agent, the local club leader, interested people of the community and county, and the specialist in field crops of the Missouri College of Agriculture, if his time will permit, will visit the plot or field of each soybean club member and, if convenient, also the fields of some other successful growers of soybeans in the county.



The 4-H Soybean Tour

1. Plans for the field meeting.
  - (1). Inspect soybean fields for results of inoculation.
  - (2). Note effect of cultivation. (Freedom from weeds.)
  - (3). Note effect of cultivation on yield.  
(See Score Card for Judging Soybean Fields, page 15.)
2. Plans for the achievement club program or round-up.

The achievement club program or round-up should be held at the close of the work for the year.

Each club member should hand in to the local club leader the completed record book so that the results of all the work of the club may be summarized for the year in the Club Secretary's Record Book.

3. Social hour, games, etc.



## VI. THE CLUB ACHIEVEMENT PROGRAM OR ROUND-UP

Suggested Public Program. Sometime from August to October.

1. Exhibit:
  - (1). Each club member to exhibit one peck of soybeans in competition with all the other soybean club members.
  - (2). An educational exhibit may be made without competition, each member showing the following:
    - a. Root system showing inoculation.
    - b. Bundles of soybeans showing growth and foliage.Each educational exhibit should have an explanatory card attached showing time of planting, method and rate of planting, and approximate yield of hay or seed.
2. Typical meeting of the club.
3. Team demonstration.
4. Judging demonstration.
5. Talk on the club's achievements by a club member, by the local club leader or county extension agent. Awarding of achievement pins, if given, to all members who completed the club work.
6. Announcement of plans for the next year.

### Suggestions

Only club members who make a complete report or have their records up-to-date should be eligible to take part in county or state contests, club camps, etc.

The events of the club achievement program and the results of the club work for the year should be carefully prepared and offered to the local newspapers for publication.

### Demonstrations

In 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, if one is held.

#### *Outline of a Team Demonstration on Inoculation of Soybeans.*

*Team*—Two members from one club designated in this outline as "A" and "B".

*References*—Inoculation for Legumes, pages 6-9.

Plans for Conducting 4-H Club Work in Missouri.

*Equipment Needed*—Peck of soybeans for each demonstration, tub or box, quart

of soil from inoculated field, commercial inoculation, one-half gallon of water, sugar, molasses or glue, pan.

*Time*—Fifteen to thirty minutes.

### PROCEDURE

<p><i>A speaks and demonstrates.</i> Leads team in giving the 4-H club pledge or a club song; gives a brief history of the club; introduces teammate and self; and states what the team is going to demonstrate.</p> <p>1. <i>Inoculation of Soybeans.</i></p> <p>(1). Explains purpose, use and results as follows:</p> <ol style="list-style-type: none"> <li>a. To produce nodules on roots.</li> <li>b. To make it possible for soybean plants to use the nitrogen of the air.</li> <li>c. For each ton of growth, 40 pounds of nitrogen is utilized out of the air, which is worth about 25 cents per lb.</li> <li>d. Increases growth of plants on thin land.</li> </ol> <p>“----- will continue the demonstration.”</p>	<p><i>B assists.</i> Joins in giving the 4-H club pledge or song. Stands at attention while being introduced.</p> <p>Prepares demonstration equipment and materials for the demonstration.</p>
<p><i>A assists.</i> Assists B in the demonstration by preparing materials and setting up equipment as needed for each step in the demonstration.</p>	<p><i>B Speaks and demonstrates.</i></p> <p>2. <i>Methods of Inoculation.</i></p> <p>(1). Demonstrates the soil method of inoculation and explains, as follows:</p> <ol style="list-style-type: none"> <li>a. Dampens the seed with some such solution as sugar and water, molasses and water or glue and water, which will make the seeds sticky, and explains processes as it is being done.</li> <li>b. Sprinkles finely pulverized soil (From a field that grew well inoculated soybeans recently) over the damp seed as they are being stirred until all are coated with soil, and</li> </ol>

explains the process as it is being done.

- c. Runs seed over a screen and removes the excess soil, and explains process as it is being done.

"----- will continue the demonstration."

*A speaks and demonstrates.*

- (2). Demonstrates the commercial culture method of inoculation and explains, as follows:

- a. Removes cultures from container and mixes according to directions, and explains process as it is being done.
- b. Places the soybeans into a box or tub and wets the beans with the culture solution, and explains the process as it is being done.
- c. Spreads the inoculated soybean seed out thinly and explains that the seed should be spread out thinly in a shady place, giving reasons for the same.

3. *Summary.*

- (1). Purpose and value of inoculation as demonstrated.

- (2). Methods of inoculation used.

4. Asks for questions.

5. Thanks the audience for its attention.

*B assists.*

Assists A in the demonstration by preparing materials and setting up equipment as needed for each step in the demonstration.

Quietly collects materials and equipment.

Stands at attention for questions.

## Score Card for Judging Demonstration Teams in Missouri

	Perfe ct Score	Actual Score
1. <b>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.		
2. <b>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 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 include the personal appearance of the members, and of the team as a whole. They should be businesslike, pleasant and so far as possible, a unit in action and appearance.		
(4) The team member not actually directing the demonstration should reinforce the point at hand or at least should not detract from the theme of the demonstration.		
3. <b>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.		
4. <b>Results</b> -----	15	
(1) Effect upon the audience, and also upon materials used in the demonstrations, as may be shown in the finished product.		
(2) All processes made clear.		
5. <b>Practicability</b> -----	15	
(1) Value of principles given for the home, community.		
(2) Actual club practices shown.		
Total Score-----	100	

Date-----Demonstration team-----

Signed-----  
(Judge)

### JUDGING SOYBEAN SEED

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.

SCORE CARD FOR JUDGING SOYBEAN SEED

Scale of Points	Perfect score	Score of Sample							
		1	2	3	4	5	6	7	8
Uniformity—									
Size and shape.....	10	-----	-----	-----	-----	-----	-----	-----	-----
Color.....	15	-----	-----	-----	-----	-----	-----	-----	-----
Quality—									
Purity.....	25	-----	-----	-----	-----	-----	-----	-----	-----
Percentage foreign matter	15	-----	-----	-----	-----	-----	-----	-----	-----
Percentage cracked beans	15	-----	-----	-----	-----	-----	-----	-----	-----
Market conditions.....	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.

### Judging by Comparison

After club members have learned to use the score card in judging soybean seed, they are ready to learn to judge by comparison. At first, this may be done by comparing two samples of soybean seed. Usually, four samples constitute a judging class, each sample being designated by A, B, C, D, or by 1, 2, 3, 4.

In judging by comparison, club members should compare the sample placed first with the one placed second, the second with the third, and the third with the fourth. Reasons should be given in a similar way, which may be given in writing at first and later orally to the leader or judge. There is a tendency for beginners in judging to describe samples of soybean seed rather than to give comparisons. Comparisons are made by taking up the essential points in a logical order as they appear on the score card. In contests, club members usually are judged on the combined results of both placings and reasons on basis of 50 points for correct placings and 50 points for correct reasons.

A free-for-all contest may be conducted in each club for the purpose of selecting the three highest ranking individual judges to represent the club on the judging team in the county contest, if one is held. Team work may be developed by giving the members of the team an opportunity to practice judging together and to discuss their own placings and reasons with each other and with the leader or judging specialist.

After the judging work has been completed but before the results of the contest have been announced, if time permits, the judge should exhibit the classes of soybean seed as placed in the contest in the presence of the contestants and explain reasons for the placings made. After understanding the placings, club members will have a fact basis for showing good sportsmanship when the results are announced.

**Score Card for Judging Soybean Fields of 4-H Club Members**

1. Seed Bed .....	30
(1) Preparation .....	15
(2) Condition .....	15
2. Variety .....	5
3. Cultural Practices .....	25
(1) Rowed .....	5
(2) Shallow Cultivated .....	5
(3) Cleanliness .....	15
4. Inoculation .....	10
(1) Used Culture .....	5
(2) Nodules Present .....	5
5. Appearance .....	10
(1) Evenness of Growth .....	5
(2) Color .....	5
6. Yield* .....	20
TOTAL SCORE .....	100

\*Where fields are to be judged before harvest, score on the basis of 80 points for perfect performance.

When either yield or height of plants is to be considered the judging committee will consider yield or height only in relation to fertility of soil as shown by average corn yields, actual or estimated, of that or a similar soil. For example, a crop on 40 bushel corn land may be much larger than, and may heavily out-yield a crop on 20 bushel corn land, whereas the boy using the 20 bushel land may have done a very much better job considering the soil fertility factor. These factors must be weighed and fairly adjusted by the judging committee.

**SUBJECT MATTER REFERENCE MATERIAL**

Inoculation of Legumes, by W. A. Albrecht, Missouri College of Agriculture.

Planting and Cultivating Soybeans for Seed, by C. A. Helm, Missouri College of Agriculture.

Productive Methods for Soybeans in Missouri, by W. C. Etheridge and C. A. Helm. Missouri College of Agriculture.