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CIRCULAR NO. 142

TEAM DEMONSTRATION OUTLINES III.

Junior Agricultural Clubs.

1. STOCK FEEDS AND RATIONS.
2. FITTING THE DAIRY CALF FOR SHOW.
3. HOG RAISING EQUIPMENT.
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Junior Agricultural Clubs.

By E. E. FISH.

INTRODUCTION

These demonstrations are designed for the use of Junior Agricultural Clubs in dramatizing their work. A coordinated series of methods relating to one piece of work is the picture to be portrayed. The outlines contained in this circular bring out many subjects of interest to the general farmer and should be applicable to different seasons of the year within the same community.

In preparing for a demonstration, a team should supply themselves with proper reference material, become familiar with each part of the demonstration and then secure necessary and desirable equipment. The demonstrators will prepare their talk so as to fit in with the operations of their teammates. The technique may be improved continually and therefore more rapidly thru practis. Leaders will drill the teams so as to present their work clearly, rapidly, convincingly and pleasantly.

The material in these outlines is arranged in columns for each demonstrator. Thus a demonstrator may know consecutively what he is to do and glancing at the material in the opposite columns may know how his teammates are to be employed at the same time.

1. STOCK FEEDS AND RATIONS.

The purpose of this demonstration is to convey information about certain standard feeding stuffs, their sources, relative feeding values and points to be considered when including them

in balanced rations. The team consists of two members. The captain states sources of feeds, composition of many mixed feeds, how to make them desirable for feeding and tells about home mixing. His companion explains the classification of many feeds, their various components, analyses and roughage feeds.

General Suggestions.

1. Call companion by his first name during the demonstration.
2. Arrange material attractively. Place cards showing proportionate composition of feeds so that they will not interfere with the view of the feed.
3. Bunting or crepe paper arranged on table before feed is placed will add to the attractiveness of the demonstration.
4. Prepare charts carefully. Make the figures large and legible.
5. Place the charts so the audience may see them conveniently after the demonstrator has discust them.

References.

"Feeds and Feeding"—The Henry-Morrison Company, Madison, Wisconsin.

"Productive Feeding of Farm Animals"—The J. B. Lippincott Co., Philadelphia, Pa.

Bulletin 223. Agricultural Experiment Station, Lexington, Ky.

Equipment.

Several agate or tin pans of one pint or more capacity. Cards 2 by 10 inches, colored so as to show the proportionate amount of disgestible protein, carbohydrates and fats. A collection of samples of ground feeds and mixed feeds, containing at least one pint each. Charts showing suitable rations for live stock as suggested by the county agent. Tags from commercial mixed feeds. Chart showing figures listed on one of these tags. Large cards designating nitrogenous and carbonaceous groups with percentages.

Nitrogenous Group Ratio under 1 to 5	Carbonaceous Group Ratio 1 to 5 and over

Feeds Demonstration.

CAPTAIN	DEMONSTRATOR 2
Introduces teammate and self. States purpose of the demonstration.	Stands in place and acknowledges the introduction.
States that live stock raisers are familiar with using some form of grain feed and that, with most farmers, the purchase of some forms of feed which are not produced on the home farm is considered a sound agricultural practis. However, a knowledge of these purchased feeds sometimes is lacking. Speaks of the sources of such feeds as wheat by-products, corn by-products, molasses, linseed meal, cottonseed meal and dried beet pulp. Calls attention to differences in appearance, weight and bulk. States that companion will explain why these feeds are grouped in two divisions and percentage required to classify as nitrogenous or carbonaceous feeds.	Arranges table in view of audience and places the dishes to contain feeds. Opens sacks of feed and pours into dishes on table, being careful to keep all labels with the proper feeds. Arranges feeds into two groups, nitrogenous and carbonaceous feeds. Places large cards so as to bring out this classification.
Places previously arranged cards with each feed, upon which is graphically shown the relative amounts of digestible protein, carbohydrates and fat. Two colors covering proportionate sections of the card, according to the nutritive ratio of the feed as given in "Feeds and Feeding" do very well. Holds up dish containing cornmeal and its colored card showing content.	Goes into detail as to the valuable properties of protein, carbohydrates and fat. States that farmers recognize feeds according to their value in producing fat or lean meat. We recognize the meat-producing constituents as proteins and the fat forming constituents as carbohydrates and fat. Explains that cornmeal is very largely composed of carbohydrates, as shown by its accompanying card. In 100 lbs. of cornmeal there are on the average 6.9 lbs. of digestible carbohydrates, 3.5 lbs. digestible fat and only 6.9 lbs. digestible protein. (Feeds and Feeding.) Explains that fat in feeds is 2¼ times as valuable as carbohydrates and serves relatively the same purpose in the body, hence these cards are designed to show the fats in terms of carbohydrates.
Exchanges cornmeal for linseed meal and holds as companion explains. Exhibits other feeds as companion calls for them.	Calls attention to linseed meal having an analysis of 30.2 lbs. digestible protein, 32.6 lbs. digestible carbohydrates and 6.7 lbs. fat which is equivalent to 15.1 carbohydrates. States that remaining parts in 100 lbs. of feed consist largely of fiber and undigestible material. Takes up several other feeds in both groups and states their analyses, showing to which group they belong. Speaks briefly of roughage feeds and their relation to the grain feeds. Includes ensilage. States that some other things having an influence on the grains to be fed will be mentioned by companion.

CAPTAIN	DEMONSTRATOR 2
Explains that a person from choice very seldom makes a meal of only one thing. Variety makes things taste better. Same is true of animals. Some feeds are not palatable when fed alone. When mixed with feeds they relish, they often will eat desirable feeds which are relatively unpalatable. We make some cattle learn to eat ensilage by sprinkling meal over it.	Brings out mixed feeds, places in dishes and arranges placards showing their analyses as well as trade names.
States that some feeds such as cottonseed meal, linseed meal and others, when used alone, do not mix well with the digestive juices. Calls attention to linseed meal as mixed with water by companion. Directs him to take handful and show its condition. Explains that this feed alone could not be easily taken care of by any animal's stomach. Explain the nature of bran. Calls attention to its condition under similar treatment to oil meal. Calls attention to the mixture and any improvement in texture for either feed. Gives reasons for such improvement. Shows how cornmeal, cottonseed meal, etc., are heavy in weight while others are light and bulky.	Takes two empty dishes, puts oil meal into one and bran into other, separately mixes each with water causing the former to show sticky and doughy mass and the latter loose and crumbly. Demonstrates these conditions as companion directs. Takes handful oil meal, squeezes together to form hard ball. Shows how resistent it is to breaking apart. Demonstrates bran in similar manner. Shows how it springs apart and fails to form ball. Mixes the two feeds together and demonstrates nature of the mixture. Cleans hands and dishes in which wet mash has been mixed.
Does this by running meal thru hand so audience can see for themselves. Explains place of fiber in feeds.	
Discusses mixed feeds. Tells of factory mixed feeds, how some are mixed for certain kinds of animals, the usual constituents, completeness of mixing and prices. States that many farmers do not examine feed tags when buying feed. Shows samples of tags taken from mixed feeds. Turns to chart and reads and explains various notations. Shows relation of digestible material to total content.	Brings out several feed tags for mixed feeds and hands to captain. Displays chart showing typical tag of feed containing a large amount of fiber and some molasses. "Common cow feed."
Emphasizes that some feeders much prefer to use a feed put out by a reputable company because it is a uniform product. In home mixing it often is uncertain whether some ingredients may be obtained. Yet many people prefer to effect a considerable saving of money by using home-mixed feeds. States that our county agent has prepared several formulae for the home-mixing of feeds which we wish to recommend. Also that these were prepared especially for our county and	Brings out charts showing balanced rations as prepared by county agent. Then arranges one or more exhibits of home mixed feeds with cards as in former exhibits. These exhibits should be composed of feeds as recommended by charts. Holds or places charts so they may be explained by companion and continue to hold the attention of the audience up to the close of the demonstration. A pedestal may be arranged or the charts may be hung on the wall.

CAPTAIN	DEMONSTRATOR 2
home feed markets. Explains charts and states general rules for determining how much feed to give each animal per day. Charts for dairy cattle, beef cattle, hogs and sheep, as desired.	Straightens up exhibits of feed and arranges all material to present a uniform appearance.
Summarizes the demonstration and asks for questions. Answers questions relating to sources of feed, making feeds palatable, commercial feeds and home mixing. Also all questions relating to bulk and other features of a ration. Questions relating to the making of new rations should be referred to the county agent. Invites the audience to attend future meetings of the junior club and to come forward and look over demonstration material at the close of the meeting. Thanks the audience for their kind attention. Bows.	Stands in place and answers questions relating to classification of feeds, the various constituents, their analyses and roughage feeds. Bows.

Questions.

1. What nitrogenous feeds do we grow at home that are suitable to use in home-mixing of feeds?
2. Can a farmer afford to limit the amount of grain for cattle at present prices in order to get roughage material used up?
3. Are commercial mixed feeds better than home-mixed rations?
4. Is a ration for cows all right for pigs?

2. FITTING THE DAIRY CALF FOR SHOW.

Breeders of live stock appreciate a well-groomed animal. Competition in the show-ring demands that an animal should be well trained. The preparation of dairy calves for show is discust in this demonstration. Team consists of two members. No. 1 acting as captain explains placing calf in position for showing and the washing process. His companion explains method of polishing horns and hoofs and the clipping of excessively long hairs.

General Suggestions.

1. Use a calf at least two months of age; one which shows good type and conformation.
2. See that the calf is used to handling and is accustomed to being led with a halter.

3. Both demonstrators should be dressed alike. An overall suit would be desirable, with the 4-H Junior Club caps.
4. Always use the first name when addressing companion or using his name during the demonstration.

References.

"The Calf Club Manual"—Holstein-Friesian Association of America, Chicago, Illinois.

Extension Circulars Nos. 106, 119 and 117, pages 64-69, University of Kentucky, College of Agriculture, Lexington, Kentucky.

Equipment.

A pair of hand clippers. (Power clippers are not as desirable but may be substituted.) Sand block. Woolen cloth, Bottle of sweet oil. Brush. Sandpaper. Emery paper. Powdered pumice stone. Pail with warm soapy water. Clean blanket of suitable size with straps. A box of shoe polish may be desirable for use on hoofs.

Demonstration, Fitting the Dairy Calf for Show.

CAPTAIN	DEMONSTRATOR 2
Introduces teammate and self. States the purpose of the demonstration.	Stands in place and acknowledges introduction.
Explains that more time is required for fitting a calf for show than the amount allowed for this demonstration. States that the first requirement is that the calf be taught to lead easily and to stand quietly. Explains that a little time daily is required for this work. Talks on methods of exhibiting animals to the judge. Also states that the calf has been thoroly washed with warm soapy water a week previous to the demonstration. Explains how it was done and precautions followed.	Leads in calf and hands the halter strap to companion. Causes the calf to stand squarely on feet and assume a natural pose. Brings out materials for polishing horns and hoofs.
Announces that companion will explain the preparation of the horns and hoofs. Fastens halter strap to a convenient place and starts working on one horn, first using the file. Works on one horn only, leaving the other for contrast.	Names the various materials to be used in polishing horns and hoofs, shows them to audience and explains their use. States the various steps necessary in doing this work well. Assists companion by working on front hoofs.

CAPTAIN	DEMONSTRATOR 2
As companion starts work on front hoofs, tells the audience that while we are doing this work they may be interested in some of the club work which our club is doing. Then gives details of the club, membership, projects, meetings, special results of individual members or proposed club members exhibits at fairs. Make this story interesting and as inspiring as possible.	Rapidly prepares front hoofs. Rear hoofs will be left in natural condition for contrast.
Unties halter strap and places animal in advantageous position to show results of work.	When work is finished points out contrast to audience and mentions that the polishing is somewhat like a boy getting ready for a party. Explains why.
Reties animal, gets clippers and trims long hairs on tail, about the horns and around the ears. Coarse sandpaper, on wooden block, will also cut away coarse hair.	May continue allusion to the party by saying the calf should have a fresh hair cut too. Explains where clipping is desirable. Holds animal's head while companion is clipping about the poll and ears. If time allows, states some advantages of showing animals at leading fairs.
Places animal in various positions to show the value of the work done.	As work is finished calls the attention of the audience to the improved appearance.
Reties animal. Gets pail of warm soapy water, washes and cleans tail of calf and then dries out as well as possible by slapping the tail against a partition or some stationary object. Then takes brush and fluffs it out. Exhibits washed tail to the audience.	Explains that just previous to showing, the tail should be thoroly washed, brushed and fluffed out. Also any soiled places on the body or legs should be washed and brushed out so as to present a thoroly clean appearance.
Places the blanket in position on the calf and busies self during explanation by putting away materials used in first part of the demonstration.	Explains the use of the blanket, when it should be used and its effect on the hair. It hides animal while animal is in stall but has to be used nevertheless.
Summarizes the demonstration, again emphasizing necessity for doing this work at different intervals previous to the show. Asks for questions. Answers those relating to showing in the ring, washing and brushing. Invites the audience to inspect the work done, to visit the Junior Club meetings being held by the home club and thanks them for their kind attention.	Clears away any materials not removed by companion. Stands in readiness to answer any questions relating to polishing the horns and hoofs and the use of the clippers and blanket.

Questions.

1. Is it fair to wash and fit some animals for a show when a number of animals will be shown in the rough?
2. Will animals without horns stand an equal chance against those whose horns have been polished?

3. Will the fitting for show injure the growth of a calf?
4. Where can blankets be obtained?
5. Is there any advantage in more than one thoro washing before the show?

3. HOG RAISING EQUIPMENT.

This demonstration requires the use of previously prepared forms and sections of equipment. These will be set up before the audience while their use is being explained. The demonstration will present the features of ease of construction at home and desirability as well as relatively low cost.

The captain opens with introductory remarks and describes the A-type colony house. No. 2 explains the shed-type colony house. No. 3 explains the construction and use of the self-feeder.

General Suggestions.

1. Material for this demonstration should be well constructed and assembled many times previous to the demonstration so the operators may be familiar with details.
2. Carefully pack material when it is to be transported for demonstrations. Special containers should be provided.
3. All members of the team should be dressed alike. A blue overall suit with 4-H club cap makes a good combination.

References.

Circular No. 102, Office of the Secretary, U. S. Department of Agriculture, Washington, D. C.

Farmers Bulletin No. 906, U. S. Department of Agriculture, Washington, D. C.

Progressive Hog Raising, Armours' Bureau of Agricultural Research, Union Stock Yards, Chicago, Illinois.

Pork Production, Macmillan and Co., New York.

Equipment.

It is desirable that each of the following pieces of equipment be constructed in flat sections and put together by hooks and eyes or screws during the demonstration. A-type hog house, shed-type hog house and self-feeders. These will be constructed one-fourth their actual size. They will be made of dry-goods boxes or other light-weight materials and according to scale, as far as practical. Any one of several types of feed-

ers may be constructed for this demonstration. Desirable plans will be found in Farmers Bulletin 906. Blueprints of all equipment may be obtained from the Farm Engineering Section, College of Agriculture, University of Kentucky, Lexington, Kentucky.

DEMONSTRATION OUTLINE.

DEMONSTRATOR 2	CAPTAIN	DEMONSTRATOR 3
Stands in place and bows to audience as captain makes the introduction. Brings out sections and rapidly constructs A-type colony house.	Introduces companions and self. Tells where team is from, what the club is doing, etc. States purpose of this demonstration. States that first piece of equipment is an A-shaped colony house (explained in circular 102). States that this demonstrator house is one-fourth size of regular house. Gives dimensions of regular house. Calls attention to features such as guard-rail around inside of house, window, ventilating system and door. Also runners beneath sills so house may be hauled from place to place. Explains the use for such a type of house, how many pigs or sows it will accommodate, etc. Shows how door on side of house, as shown in plate 2 of Progressive Hog Raising, will facilitate cleaning. Mentions kind of lumber generally used in construction.	Stands in place and bows to audience in turn as introduced. Assists in setting up colony house.
Takes up discussion stating that some prefer a shed-shaped house and are interested in plans for such. My associates are now constructing a miniature house, one-fourth the size of a regular house. Gives dimensions of such a colony house. Discusses special advantages, as sunlight, ventilation, materials and cost of construction and the uses for such a house.	Assists with assembling of hog house.	Brings out sections for shed-type house and starts to assemble.

DEMONSTRATOR 2	CAPTAIN	DEMONSTRATOR 3
Assists companion in erecting self-feeder.	Brings out self-feeder and starts to assemble, putting sections together in clear view of audience.	Takes up discussion stating general arguments for the use of self-feeders. Mentions in detail some advantages such as labor saving, pigs do not remain hungry, waste of grain is small when feeder space is ample and other valuable points. (Farmers Bulletin 906.)
Moves model houses to one side so the self-feeder will get the attention of the audience.	Displays the feeder to advantage as companion calls attention to special features of construction.	Explains this particular model of self-feeder in detail showing arrangement for control of feed, material and roofing requirements, etc. Calls attention to the desirability of painting.
Gets charts previously prepared to bring out features of companion's talk. Holds to advantage.	Assists companion in holding or fastening up chart.	Gives results of some local user of a self-feeder, if possible; if not, shows the results as furnished by the county agent's office.
Rearranges the exhibit of work assembled so that each piece will command a proportionate amount of the attention of the audience.	Takes charge of demonstration by summarizing the work as shown. Mentions that other important equipment is proper fence arrangements, the water supply and perhaps a hog wallow. Suggests that farmers study their needs along those lines also. Asks for questions, answers those regarding the A-type colony house. After questions are disposed of invites audience to come forward when the meeting is over and examine the exhibits. Thanks them for their kind attention.	Assists in rearranging the exhibit of work.
Takes position beside captain and stands in readiness to answer questions relating to the shed-type of house.		Takes position on opposite side of captain and is prepared to answer questions regarding self-feeders.
Bows in unison with captain.	Bows as he thanks audience.	Bows in unison with captain.

QUESTIONS.

1. Can one of these small houses be used for all seasons of the year?

2. Is such a house warm enough for a brood sow?
3. Will pigs grow as well when a self-feeder is used?
4. Can whole corn be used in a self-feeder?
5. Which of the two forms of colony houses shown is the best?

4. SEED CORN GERMINATION.

While most framers know the principles and practises of testing seed corn, this demonstration will serve to renew interest and bring out the more advanced practis of individual ear testing and the retention of such ears as show strong germination.

General Suggestions.

1. A test started five or six days previous to the demonstration may be made, either form of tester being used.
2. An original story concerning observed good corn yields due to germination tests will aid in getting the demonstration under way.
3. Always address teammates by their first names.

References.

Year book, 1921, U. S. Department of Agriculture, Washington, D. C.

Farmers Bulletin, No. 948, U. S. Department of Agriculture, Washington, D. C.

"Seed Corn," International Harvester Co., Chicago, Illinois.

Circular No. 211, Illinois Agricultural Experiment Station, Urbana, Ill.

"Corn Book for Young Folks," by Williams & Hall, Ginn & Co., Boston, Mass.

Extension Circulars No. 56, pages 19-21, No. 117, pages 64-69, University of Kentucky, College of Agriculture, Lexington, Ky.

Equipment.

Cloth suitable for rag-doll tester. Box suitable for sawdust tester. Cloth for sawdust tester, also top cloth. Yardstick. Carpenter's pencil. Table, sawdust, water, bucket, ten ears of corn, sixpenny nails, small pieces of cardboard about 1 inch square, tester with original test about six days old. Bulletins for distribution.

Seed Corn Germination.

DEMONSTRATOR 2	CAPTAIN	DEMONSTRATOR 3
Stands in place and acknowledges introduction.	Introduces companions and self. Tells where team is from and the purpose of the demonstration.	Stands in place and acknowledges introduction.
Prepares rag-doll tester. Draws heavy lines using yardstick, table and carpenter's pencil. After completely checking and numbering the tester, holds it out for the audience to inspect. After explanations by captain, hangs it on edge of table where audience can see, and gets sawdust and water for companion.	Gives the annual acreage of corn in Ky. The amount of seed necessary for 1 acre. The number of ears this may represent. The amount of decrease in yield by one dead ear, two dead ears. Calls attention to the two testers being made and explains their construction and use. Calls attention to the use of each numbered space for a separate ear.	Brings out box and cloths for sawdust tester. Checks off muslin bottom cloth in manner similar to that being done by companion. Displays same as captain explains, then proceeds to prepare the test.
Gets nails and cards for numbering ears and assists captain. Sticks nails thru cardboard squares after captain has numbered them and then fastens them to butts of ears.	Announces that teammate No. 3 has been preparing for a representative test and will now explain the various steps to be taken. Numbers the cardboard squares and hands them back to assistant.	Tells how much water to add to sawdust, details of preparation and how arranged. Explains the numbers being placed on ear butts and shows correspondence to test sheet.
Hands ears of corn to captain one at a time for the removal of kernels. As he finishes with each ear, replaces it on table where the numbered butt may be seen by audience.	Takes six kernels from each ear at different places according to reference instructions and places them in their respective squares in the test box as companion explains to audience.	Explains why kernels are removed from different parts of ear. Calls attention to method of removal. Shows how the numbers on ears correspond with the numbers on tester.
Prepares material to close tester.	Closes tester as companion explains.	Explains length of time, temperature and method of handling for completing test.
Points to various squares, calling attention to the number of dead and growing kernels. Picks out two outstanding strong kernels and two weak ones and explains. Advises as to ears suitable for seed and those not suitable.	When companion No. 3 has completed explanation, announces that companion No. 2 will show the things to consider when reading the completed test. Removes the previour work of the team.	Brings previously prepared test and opens it. Holds out for audience to inspect. Hands over ear of corn as companion requests.

DEMONSTRATOR 2	CAPTAIN	DEMONSTRATOR 3
Places a test mark on card for ear corresponding to the number in tester, showing method.		
Clears away materials and returns to place.	Summarizes the various steps shown by the members of the team in this demonstration. States that the team will attempt to answer all questions regarding the points covered by this demonstration. Answers questions of seeding and causes of poor corn due to seed. Invites audience to attend further meetings and thanks them for their kind attention.	Assists to clear away materials and returns to place.
Answers questions relating to the reading of tests and strong and weak germination.		Answers questions regarding forms of testers and their control.

QUESTIONS.

1. Will kernels from the tips and butts of ears germinate as well as those from the rest of the ear?
2. Will kernels grow as well between layers of cloth as they will in the soil?
3. How do you account for some ears showing up dead and others strong when all had received the same care?
4. What is the reason the slow-germinating kernels are not as good as the fast growers? How do they affect the yield?
5. When should germination tests be made?
6. Can any one determine whether corn will germinate or not by examining the kernels?

In answering question No. 6 the demonstrator is cautioned to bear in mind that immature and improperly dried ears very often may be detected by examination of the kernels removed and by the condition of the cob.

5. LIME AND SOIL ACIDITY.

A demonstration presenting information about lime used in agriculture and methods for determining the need for applications of lime.

General Suggestions.

The forms of lime for this demonstration may be procured locally and prepared in advance for convenience in demonstrating. Information as to source of various forms of lime may be obtained from the Agronomy Department, College of Agriculture, Lexington, Kentucky. The potassium thiocyanate solution and the mixture of alum and iron salt may be obtained from the Junior Club Department, College of Agriculture, Lexington, Kentucky, for about 75c per pint.

The various forms of lime should be placed on sheets of paper, rather than on the surface of tables, in order to facilitate ease in handling and cleanliness.

Mount lime placards on standards which may be erected by standing in the pile of lime.

References.

Extension Circulars Nos. 54, 59, and Circular No. 117, page 64-69, University of Kentucky, College of Agriculture, Lexington, Ky.

Farmers' Bulletin No. 921, U. S. Department of Agriculture, Washington, D. C.

Equipment.

One sample each of burned lime, hydrated lime and ground limestone in weights to represent equal neutralizing value.

A four-per-cent solution of potassium thiocyanate in acetone.

Samples of properly mixed dry soil from fields in the neighborhood.

Powdered alum mixed with a small proportion of ferric ammonium sulfate.

Four or more 2-dram vials for making tests.

Placards for showing kinds and amounts of lime in the piles.

A sheet of cloth representing a field, shaded in places to represent several soil types, also showing five or six stars where soil samples should be taken.

Three sheets of heavy paper, 30″ by 30″.

Charts showing amounts of three forms of lime which may be purchased locally for $5.00.

Lime and Soil Acidity.

CAPTAIN	DEMONSTRATOR 2
Introduces self and teammate. Tells where team is from and the purpose of the demonstration. States that lime has been used in agriculture for a great many years. Also that there are very few soils which are not benefited by the use of lime in some form. Explains its use on the soil and why of value. Explains the lime exhibit to the audience. Shows how one pile is small, one larger and the other still larger. Also that each amount has an equal effect on soil under equally favorable conditions. An original illustration may be used here to make this point clear. States that there is often a question as to which form to use. Price is the governing factor in most cases. Shows figures on chart and explains that at the present local prices $5.00 will buy .....tons of burned lime, ...tons of hydrated lime and ..... tons of ground limestone. Brings out that according to many trials it has been shown that on average soils of the state, moderately acid in nature, it is practical to apply 1 ton of burned lime, 1½ tons hydrated lime or 2 tons of raw ground limestone to correct soil acidity and make the soil friendly to legume crops.	Stands in place and acknowledges introduction. Sets up table and arranges papers for exhibiting lime. Pours out on paper previously weighed sacks of lime and places placards denoting the kind of lime and weights in ounces. These samples should contain by weight: burned lime, 56 ozs., hydrated lime 74 ozs., and ground limestone 100 ozs. (Assuming that the limestone is pure. If the limestone is not pure, the relative weights will be somewhat different.) Gets previously arranged chart showing information desired as to amount of lime which may be bought for $5.00. Holds chart as captain explains, then hangs it in position to be seen by the audience. Brings out sack of soil and engages in mixing and pulverizing the lumps.
Explains that in recent years ground limestone has been the more common form. Brings out the desirable as well as undesirable features of the various forms of lime. Expands talk as desired. (Farmers' Bulletin No. 921.)	Removes lime from table and replaces in sacks, cleaning up the table for next part of the demonstration.
Announces that companion has some soil testing to carry on. Gets and fastens up a sheet designed to illustrate a field, showing shaded portions to designate different soil conditions. Also shows five or six round or star-shaped marks to indicate places from which soil has been taken.	States that a great many farmers are desirous of knowing whether their soil actually needs lime. Shows that in making a chemical test it is necessary to have a properly taken and thoroly mixed soil sample. Explains how soils may vary in different parts of one field. Why? Explain method of securing uniform soil sample. Calls attention to the illustration by chart. States that about a quart of soil should be taken in all.

CAPTAIN	DEMONSTRATOR 2
Places material on table for starting soil test. Puts a pinch of iron and alum mixture into 2 dram bottle, then fills bottle nearly one-half full of thiocyanate solution and shakes vigorously. A deep red should appear. After showing to the satisfaction of companion and audience, adds a small quantity of burned lime and shakes to cause color to disappear. Ground limestone causes the color to disappear, but more slowly. This should be shown to audience by preparing a second solution.	States that many persons are familiar with litmus paper test, but that it is misleading many times because of the variable quality of litmus paper. States that the "potassium thiocyanate" solution is prepared specially for this kind of work. Announces that teammate will conduct a soil test and meanwhile explains the method. Explains that companion holds a small bottle containing a mixture of iron and alum that is affected by the test solution like an acid soil. The test solution acts on the iron to cause a deep red color. With an acid soil it also acts on the iron and causes a red color. When the soil is neutral, or contains enough lime the red color is not produced. When a small amount of burned lime is added to the colored solution and shaken the color disappears.
Takes small quantity of soil in test bottle from soil sample previously well mixed and pulverized. Carries out test as teammate explains. Explains the action of ground limestone on iron and why it works slower than burned lime. Holds test bottle so the audience may view results.	Calls attention to soil previously mixed. States that a clean bottle is filled one-fourth full of soil to be tested. The potassium thiocyanate solution is added until the test bottle is about one-half full. The contents are then shaken vigorously and allowed to settle. Thus you may see whether soil is acid or not. The reddish color denotes an acid soil; the deeper the red, the more acid is the soil. Absence of color shows that lime is already present in the soil. States whence the soil sample came and the result of this test. If he has other soil, tells whence it came as companion makes the test. Invites audience to bring soil samples for the team to test.
Takes charge of the meeting by summarizing the demonstration. Makes brief statement of work the team is willing to do for any one in the audience.	Clears away materials.
Asks for questions. Answer those pertaining to forms of lime and applications.	Answers questions relating to soil testing and taking samples of soil.
Thanks audience for interest and kind attention.	Stands in place.

Questions.

1. Are some kinds of ground limestone better than others?
2. Why is it necessary to correct soil acidity?
3. Is liming the only cure for sour soils?
4. Will sandy soil be as likely to need lime as a finer soil, such as a loam or silt soil?

5. Can anyone get some potassium thiocyanate solution to make these tests with, if so where?
6. How can a person know how much lime to use after the test shows the soil to be acid?
7. Can you use this test to tell how much fertilizer to apply?
8. If burned lime and hydrated lime have been made from limestone containing 90 per cent of calcium carbonate, how much of each will have the same neutralizing power as 100 parts of the original limestone?

6. SELECTION AND TREATMENT OF IRISH POTATOES FOR SEED.

The future acreage of Irish potatoes is likely to increase in many parts of the State thru improved methods of selection and treatment of the seed. This demonstration should teach that lesson. The team consists of two members. No. 1 acting as captain explains market type, diseased hills and methods of securing seed for the following year. Companion explains hill selection, tuber diseases and treatment.

General Suggestions.

1. Use potatoes that are relatively smooth and of good type. Avoid long, slender and knotty potatoes with deep-set eyes.
2. Potatoes will present a better appearance if a clean brush, such as a shoe brush is used to remove all surface dirt previous to the demonstration, when the potatoes are dry.
3. Be careful to keep separate all potatoes which have been treated with corrosive sublimate. Such potatoes must not be used for food, either for humans or for animals, because corrosive sublimate is a poison.
4. Always address teammate by first name during the demonstration.

References.

"More and Better Potatoes to the Acre," International Harvester Co., Chicago, Illinois.

Extension Circular No. 100 and No. 117, Chapter 5, University of Kentucky, College of Agriculture, Lexington, Kentucky.

EQUIPMENT.

One to one and one-half bushels of Irish potatoes, containing many small ones and some large ones. Local variety preferred. Some scabby potatoes. One or more potatoes showing rhizoctonia. One ounce of corrosive sublimate, correctly labeled. Pint bottle of formalin, correctly labeled. Overalls for uniform of demonstrators. Wooden buckets, water and cloth sack for treating small quantity of potatoes. Shallow, flat wooden box of light weight for displaying one hill of potatoes. Two charts, made in accordance with the diagrams in this circular.

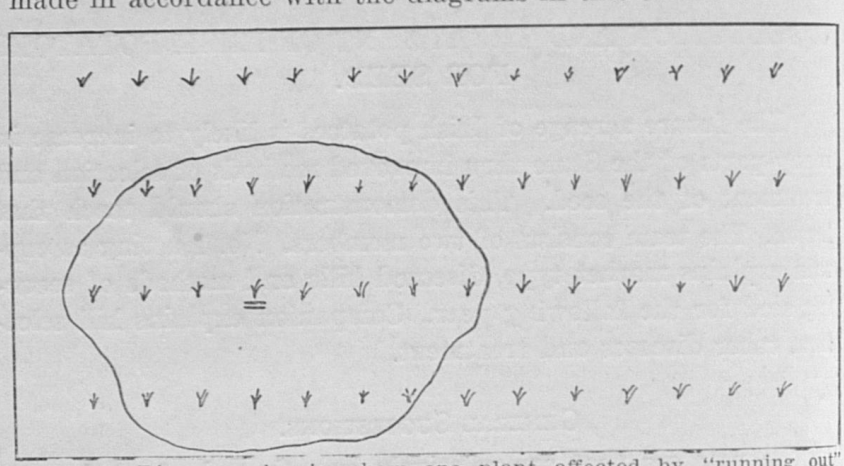

Fig 1. Diagram showing how one plant affected by "running out" diseases may cause tuber infection in a number of adjacent hills when the plant infection is spread to those adjacent plants by aphids or plant lice. The potatoes in these adjacent hills may not indicate in any way that they have become infected. The remedy is in the early removal of the diseased plant as soon as it can be recognized.

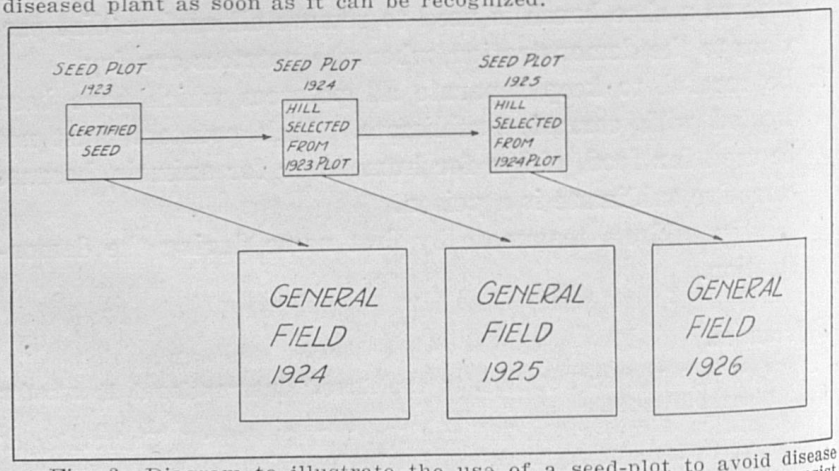

Fig. 2. Diagram to illustrate the use of a seed-plot to avoid disease and improve the quality of seed potatoes. The seed-plot should consist of about one-tenth of the total acreage of potatoes to be planted the following year.

CAPTAIN	DEMONSTRATOR 2
Introduces companion and self. Tells where team is from and the purpose of the demonstration.	Stands in place and acknowledges the introduction.
Cautions audience regarding use of poorly shaped variety for seed. Shows potato desirable on the market. Also explains that this type is sought in exhibits. States that the harvest depends on what is planted. States usual practis of selecting seed potatoes. Explains briefly the "running out" diseases of potatoes and suggests a study of bulletin. (More & Better Potatoes, pages 22 to 25.) Shows how a diseased hill is likely to yield by calling attention to arrangement made by companion. Shows the yield to expect from a good healthy hill. Explains that diseases just mentioned are spread from diseased hills to the surrounding healthy hills during the growing season by the plant lice. Hence hills appearing healthy at digging time may be infected. Explains more fully by use of chart. States that means of control consist in destroying all diseased hills as they show up in the field. Explains the use of a seed-plot where it is practical to remove diseased hills and other hills where the healthiness may be questionable. Explains method of seed-plot plan in developing seed for each year. (More and Better Potatoes, page 10.) Uses chart in explanation. Cautions audience to have seed-plot well removed from the general field to prevent early infection with aphids. States that certified seed should be secured to start the seed-plot. To continue the seed-plot for another year, a method known as "hill selection" should be used. States that teammate will explain in detail.	Places a sack of potatoes on the table in plain view of the audience. Empties and lays out piles to represent hills of potatoes. Arranges hills to show results of diseased hills. Uses several small tubers together with one of medium size. Other similar combinations can be shown. Arranges as a contrast, hill having eight or nine medium size potatoes and two small ones, representing a normal hill. Gets previously prepared chart showing distribution of disease when a few diseased hills are allowed to mature. Hangs chart where companion can explain in detail to audience. Gets chart showing plan for growing disease-free seed and hangs in a similar position to the first chart.
Puts one-fifth oz. of corrosive sublimate into a small cloth and hangs on side of bucket of hot water to dissolve. Stirs from time to time to insure dissolving. Arranges several more hills of potatoes, containing 6 to 11 potatoes, some large, some very small, and other hills in which all the potatoes are reasonably uniform. Displays hills pointed out by companion by placing them in a flat, shallow box and setting at an angle so audience may plainly observe them.	States that "hill selection" refers to the selection of individual hills in the seed-plot before field is harvested. Make statement as to rogueing, its necessity and value before hill selection can be of value. Explains method of selecting and marking strong-growing and healthy appearing hills for examination later on. States method of digging these marked hills and type of hills to be used for seed. Indicates hill which would be especially desirable and states that all those potatoes may be used safely for seed improvement because they tend to re-

	produce the hill character. Points out that small potatoes from bin selection would reproduce the undesirable hills much more rapidly than the desirable hills. Also that a number of plant diseases already mentioned by companion stunt the plant and cause small and diseased tubers to be produced immaturely. Explains that the remaining healthy hills from the seed-plot will be the seed for the general field next season.
Busies himself cleaning away previous work. Gets bucket of water and sees that corrosive sublimate is sufficiently dissolved to be demonstrated. Selects and exhibits one or more tubers affected by common scab. Selects and exhibits one or more potatoes affected by rhizoctonia. Hands companion bottle containing corrosive sublimate for demonstration. Adds dissolved corrosive sublimate to bucket of water. Gets small sack and puts potatoes into it to be suspended in the bucket to illustrate treament. Removes the diseased potato exhibits and clears away materials as time will permit.	States that potatoes should never be planted when they are known to be diseased. States that two common tuber diseases may be detected at seeding time and treatment given the tubers. These diseases are known as common scab and rhizoctonia. (Turns to companion.) States that potato being held by companion shows what every housewife recognizes as common scab. States that it causes waste when potato is pared. States that this scab may be prevented to a great extent by treatment of the seed. Calls attention to potatoes being exhibited by companion and explains the disease and its peculiar features. States that this disease causes a serious decrease in yield in the early or first crop of potatoes in Kentucky. It is especially noticeable on northern grown seed, including certified seed. Explains the treatment for both common scab and rhizoctonia now in common use and known as the corrosive sublimate treatment. States that solution is made by dissolving 1 oz. of corrosive sublimate in 7½ gallons of water. (Ext. Cir. No. 100.) For the amount of water in this bucket one-fifth oz. is sufficient. Explains method of treatment. See "More and Better Potatoes," page 13. At the end of discussion asks audience to remember these points. Soak only whole tubers. Corrosive sublimate is a rank poison so no soaked potatoes should be allowed to remain where persons or stock may eat them.
Summarize the demonstration and asks for questions. Answers questions relating to potato type and handling the seed-plot. Invites the audience to attend any future meetings of the Junior Club and thanks them for their kind attention.	Stands in place and answers questions relating to "hill selection" and treatment of tubers for scab and rhizoctonia.

QUESTIONS.

1. How much does corrosive sublimate cost?
2. Why is the handy size potato preferred to larger ones?
3. Do seed potatoes need to be treated every year?
4. Should the seed-plot be planted at the same time as the main crop?