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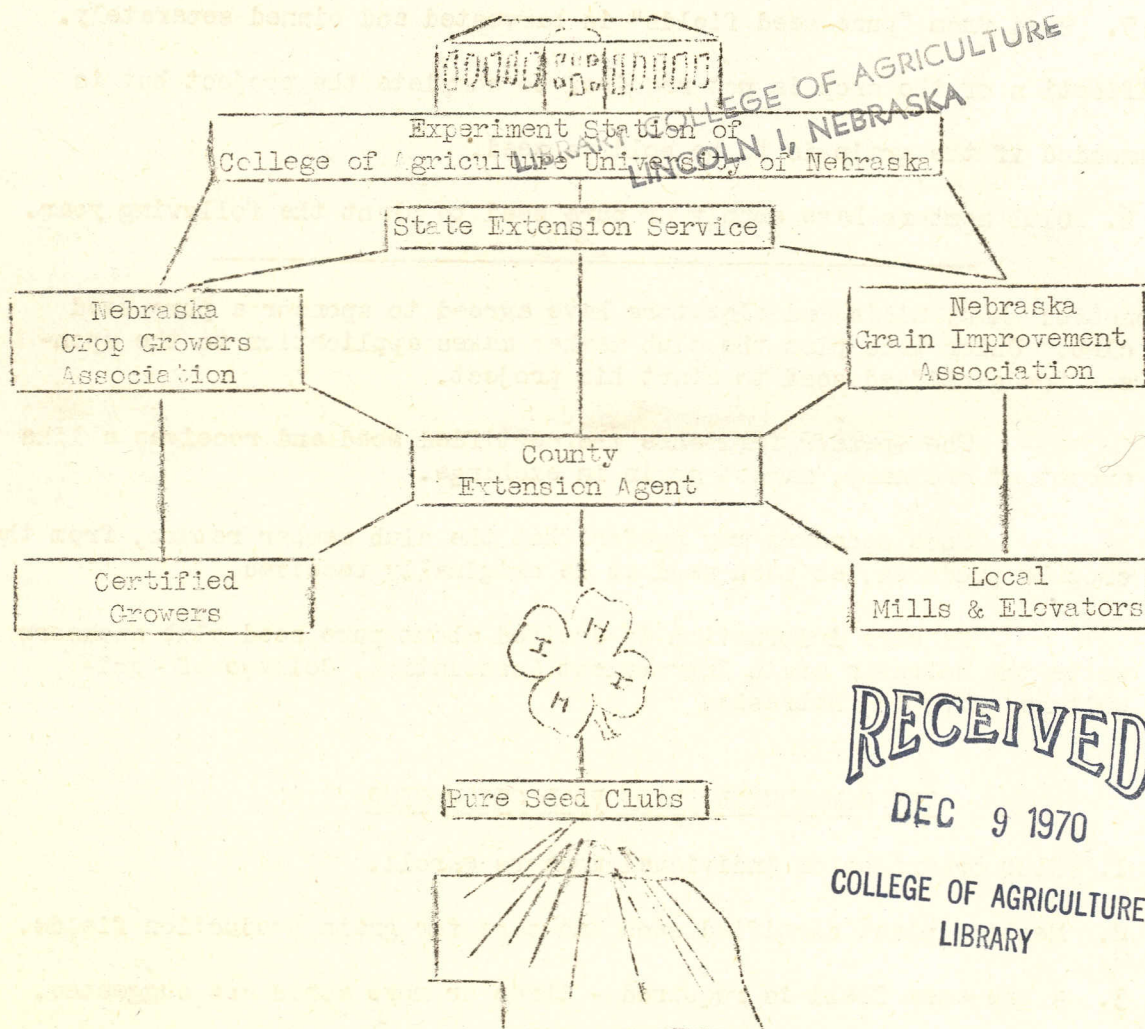
1952

Nebraska
COOPERATIVE EXTENSION WORK
IN AGRICULTURE AND HOME ECONOMICS

U. of N. Agr. College & U. S. Dept. of Agr. Cooperating
W. V. Lambert, Director, Lincoln

Extension
Circular
1-61-2

THE PURE SEED PLAN



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"PURE SEED FOR EVERY FARM"

A cooperative project designed to improve the
Quality of Nebraska's wheat, barley, and oats by
Distributing pure seed of approved varieties
To 4 H Club members

HOW THE "PURE SEED PLAN" WORKS

1. Club organizes under the direction of County Extension Agent. Individual members may enroll for the project if a club cannot be organized.
2. Club member arranges with parents for a "pure seed field." A minimum of one acre is required.
3. Club member, leader, county agent, or sponsor* obtains certified seed for the project.
4. Club members plant and care for "pure seed fields."
5. Seed from "pure seed fields" is harvested and binned separately. Certification of the crop is not required to complete the project but is recommended if the grain is to be sold as seed.*
6. Club members have supply of pure seed to plant the following year.

* Sponsors: Many mills and elevators have agreed to sponsor a pure seed club. Under this plan the club member makes application to the sponsor for certified seed to start his project.

The sponsor furnishes the certified seed and receives a like amount of ordinary, market grain in exchange.

Some sponsors may prefer that the club member return, from the crop he produces, as much seed as he originally received.

If more information is desired about pure seed club sponsors write the Nebraska Grain Improvement Association, College of Agriculture, Lincoln, Nebraska.

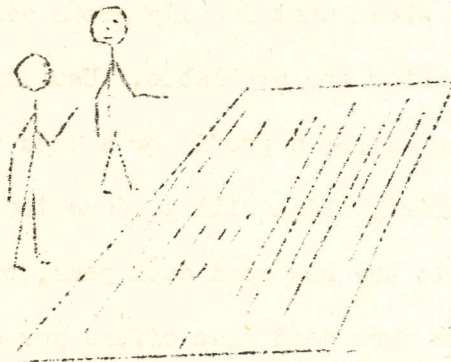
THE COMMERCIAL GRAIN PRODUCTION CLUB

1. Club organizes or individual members enroll.
2. Members plant certified seed and care for grain production fields.
3. A one-acre field is required - three or more acres are suggested.
4. Certification of crop is not required.
5. Members harvest and market the crop as commercial grain.

PURE SEED PROJECT

Problem 1

Why pure seed?



You are going to produce pure seed, but in order to do it intelligently you will need to understand clearly a few facts.

Pure seed implies a number of things. In the first place, it is of a certain, definite variety. That means that it is adapted to certain climatic conditions and to certain soils. It also means that it has certain uniform and recognized characteristics. Then it means that it must be free from other varieties, other grains, and weed seeds.

The Experiment Station through many years of careful testing throughout the state has found: That certain grain varieties yield more than other varieties. That some are more resistant than others to diseases, drought, winter-killing, lodging, and insect injury. All these factors have been studied for each of the varieties and on the basis of such studies certain ones are recommended.

As new varieties are developed, they are released to farmers for growing. Occasionally farmers themselves bring in different varieties from other regions

or states which may or may not be adapted. Thus as time goes on, and more and more different varieties come into the community, seed which was pure at one time often becomes a hodge podge of many varieties, as a result of mixing through improperly cleaned grain separators, combines, wagons, and bins.

We all like to pride ourselves in having purebred or high grade livestock. We should likewise pride ourselves in growing pure or high grade seed. Tests have many times shown that locally grown varieties are often much poorer than other varieties which are available. Usually a difference of only a few bushels in yield means either a profit or a loss from that crop. Therefore, you need to have a variety which will produce the greatest return per acre.

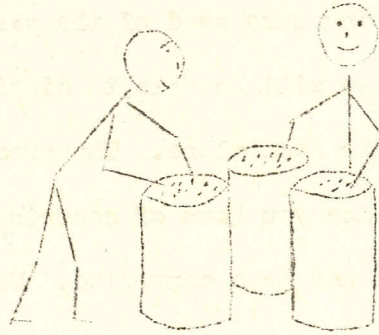
No one likes to buy new seed each year, but it sometimes is the profitable thing to do. The pure seed plan offers you an opportunity to try out pure seed of a new variety on your farm, and if you like it you will have a supply of good seed for the next year. Your local sponsor who is interested in community development is standing part of the cost of this pure seed.

In this project, you are to produce pure seed on your farm and for your farm. You are to seed about 5 bushels of a variety which you select. The seed will be secured for you by the county agent from your sponsor. The county agricultural agent will assist you in entering into an agreement with this local sponsor who will supply the seed. It will be certified seed in order that you may know what you are getting.

The purpose of your work will be not only to produce pure seed of a well known and recognized variety but also to learn how to maintain its purity. You will learn of the many ways by which seeds become contaminated and mixed. You will learn and practice the various ways and methods known by which you will prevent contamination.

Problem 2

What variety should I select?



By now you have concluded that it is best to get seed that has been tried and tested and whose origin, purity, and characteristics are known.

Here are some of the questions which should be asked in making a choice of any variety:

1. Is it one which is adapted to this territory?
2. Have tests shown it to be a high yielding variety?
3. Does it produce a quality of grain which is demanded by the market?
4. Does it have a strong straw?
5. Is it resistant to diseases?
6. In the case of winter wheat, is it winter hardy?
7. Is it early, medium, or late in maturity?
8. What other characteristics make it desirable or undesirable?
9. What are its strongest points?
10. What are some of its weaknesses?

You will need to recognize that there is no variety which will stand up with a perfect score under these questions. You will therefore need to know the weak points of the variety you select as well as the good points. The one you select will be the one which comes the nearest to being superior in all these characteristics for your community.

How can you be sure of getting pure seed of the variety which you wish to try? Neither you, nor anyone else will be able to distinguish one variety from another by the appearance of the seed alone. Therefore, in starting out with a new variety, the only assurance you have of securing pure seed of that variety is to start with seed which has been certified. Now, what do we mean by certified seed? The following explanation of seed certification in Nebraska is taken from the 1940-1941 Directory of Nebraska Certified Seed.

"In accordance with the Nebraska Seed Certification Law enacted by the 1931 session of the state legislature (House Roll 67), the Nebraska Crop Growers Association has been delegated by the College of Agriculture as the official agency for the certification of corn hybrids, sorghums, sudan grass, oats, barley, wheat, and alfalfa.

The certification committee of the College of Agriculture, has drawn up standards and rules for the production and certification of Nebraska state certified seed of the above-named crops which are carried out by the Nebraska Crop Growers Association and complied with by cooperating growers of certified seed.

Varieties are eligible for certification only after they have been thoroughly tested by the Nebraska Experiment Station and found to be adapted to and superior under Nebraska conditions.

Seed eligible for certification must be of approved origin or pedigree, must have been grown on fields which passed one or more rigid field inspections, must be free of noxious weed seed, and must meet certain requirements in the threshed or graded form."

If you should decide to have your field certified, remember that application must be made to the Nebraska Crop Growers Association, Lincoln, Nebraska, by June 10. Applications are made on blank forms supplied by the

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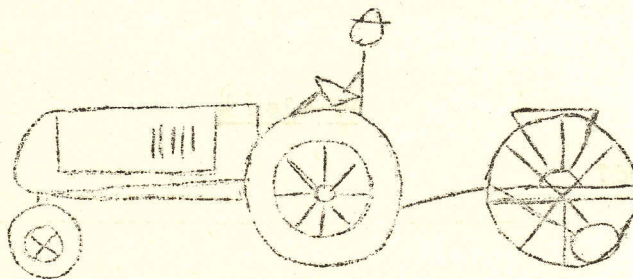
county agent. The applicant should study thoroughly the rules and regulations before submitting an application.

Questions to ask and answer:

1. What are the strong points of the variety you selected?
2. Can you tell one variety from another by the appearance of the seed?
3. What is the purpose of seed certification?
4. Why is only certified seed used in this project?

Problem 3

How to select and prepare the field:



In locating a field to plant wheat, barley, or oats, it is not necessary to isolate it from other small grain varieties, except that it is well to leave a definite boundary at least two feet wide to prevent mixing at harvest time. All these except rye are self-pollinated. What cross pollination does take place except in the case of rye is of little consequence. It is well, however, to observe these points in determining the place for the pure seed plot:

1. Avoid a field that may have volunteer grain.
2. Avoid a field infested with field bindweed or other noxious weeds.
3. Avoid a field where the soil is very poor.
4. Avoid a field that is very weedy.

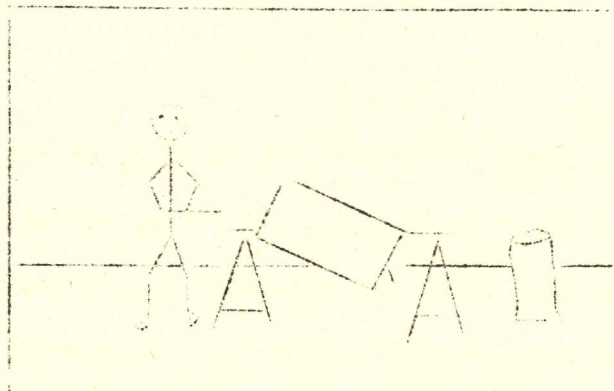
As to the seedbed preparation, it is well to know that small grains prefer mellow, well prepared, compact soil. To secure these, the best local practices should be followed. Nebraska Bulletin 389 gives valuable information on the cultural practices in winter wheat production.

At this time it might be well to select a judging team and also a demonstration team. The subject of demonstrations should be taken up for special consideration. These questions should be raised and answered:

1. What is a demonstration?
2. What is necessary to have a good demonstration?
3. What 3 parts are there to a good demonstration?
4. What possible team demonstrations might be given in connection with the pureseed production project?

Problem 4

How to treat seed?



HOW TO TREAT SEED

Since it will be your aim to produce a high yield per acre of pure seed, certain procedures will have to be followed. Special care is required to preserve the purity of the original seed.

The certified seed which was delivered to you should have been fanned by the producer. That means that some of the weed seeds, light poorly filled kernels, sticks, chaff and dirt have been removed. Clean seed feeds through the drill more easily and results in more nearly uniform stands.

You can easily see how transferring seed from one container to another might lead to contamination. Sacks, bins, and other containers used in holding the pure seed must be clean and free from other grains, other varieties, and weed seeds.

There still remains, however, the problem of smut control. This may be accomplished in two ways:

1. By treating the seed to be sown.
2. By planting a smut resistant variety of those crops for which smut resistant varieties have been developed.

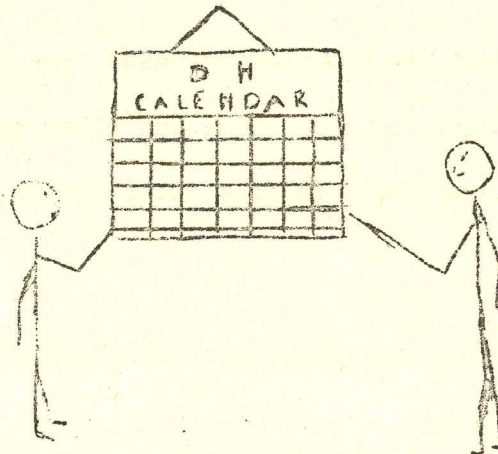
All seed sown for the production of "pure seed" should be treated for smut whether the seed is listed smutty or not. Smut resistant varieties may seldom need treatment. Reliable methods now are known for treating different kinds of small grain to kill smut. Extension Circular 1809, "The Whys and Hows of Cereal Seed Treatment", gives complete directions. It pays to treat seed for smut.

Questions to ask and answer:

1. What is smut?
2. How does smuttiness affect the price of grain?
3. What does it cost to treat grain for smut?
4. What precautions should be observed in treating grain for smut?

Problem 5

When and how to plant the seed?



The time of sowing small grain is very important. For the spring grains experimental work has shown that best yield may be obtained by seeding the latter part of March or the early part of April. The best time for seeding winter wheat varies from late August or early September in western Nebraska to late September or early October in extreme southeast Nebraska. Particularly in the southeastern countries it is sometimes necessary to delay seeding because of the Hessian fly.

As to methods of planting, tests show that drilling of grain is preferable. To prevent any contamination of seed it is essential that the drill be absolutely free from other grains and from weed seeds.

The rate of seeding will have to be governed by the best local practices. In general, however, the following rates are being used:

Rate of Seeding Small Grain

	Eastern Nebr. (Pecks)	Central Nebr. (Pecks)	Western Nebr. (Pecks)
Oats	8 to 12	7 to 10	6 to 8
Barley	8	6	4 to 5
Spring wheat	4 to 5	3 to 5	3 to 4
Winter wheat	4 to 6	3 to 5	2 to 4
Winter rye	6 to 7	4 to 6	3 to 4

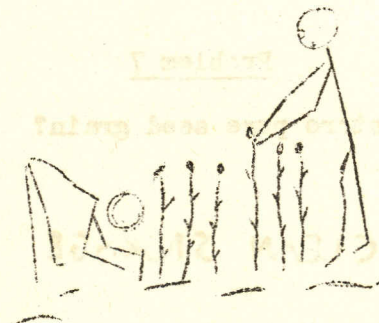
If your pure seed field is a part of a larger field of the same crop, you should leave a space at least two feet in width to serve as a definite boundary between this plot and the rest of the field. This will help to prevent mixing of seed during harvest. If you intend to have your crop certified, a boundary of a fence or at least a five-foot space between your field and other crops is required.

Questions to ask and answer:

1. Why does drilling give more satisfactory results than broadcasting?
2. Which of the spring grains should be sown first?
3. What may determine the time of seeding of winter wheat?
4. What factors help to determine the rate of seeding?

Problem 6

How to rogue the field?



Even getting the best seed possible does not assure a pure-seed harvest. Roguing must be practiced. This means removing off-type, diseased, and foreign plants.

As the grain approaches maturity several close and thorough inspections of the field must be made. As a result of such inspections, these things should be done:

1. All troublesome weeds should be destroyed.
2. All off-type plants should be removed.
3. All diseased plants should be eliminated.
4. All other grain plants should be taken out.

By doing these things, purity of the seed will not only be maintained but may actually be improved.

At this time the club members might make a study of the weeds which were found in the pure seed plot. A record might be kept showing the kind and the number of weeds which were destroyed. State Bulletin 101 would be helpful in learning about weeds.

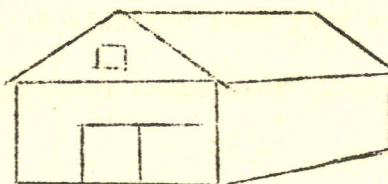
Questions to ask and answer:

1. What is meant by roguing?
2. The presence of what weeds in your pure seed field would be most alarming?
3. How would you determine off-type plants?
4. When should roguing be done?

Problem 7

When and how to harvest and store pure seed grain?

CLEAN STORAGE



The time of harvesting will depend somewhat on the method employed. If a combine is used, the grain will have to be sufficiently matured and dry so that it may be safely stored. In case a binder is used, the bundles should be shocked carefully so as to permit thorough drying. No sprouting should be permitted. Storage should be made in a clean, well ventilated, insect-free bin.

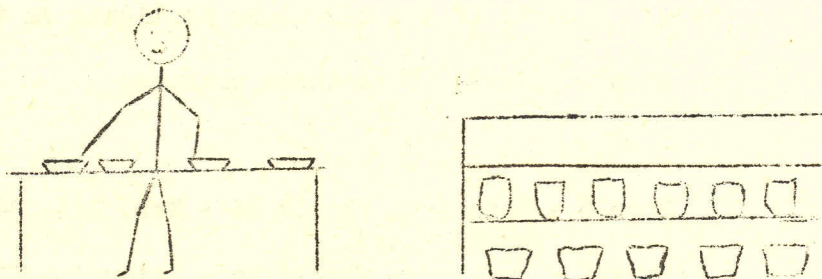
The following points should be observed:

1. Combine or separator used must be absolutely free from other grains, other varieties, and weed seeds.
2. Wagons, sacks, and other containers which may be used in holding the grain must also be thoroughly clean.
3. The bin where pure seed will be stored must be thoroughly cleaned.
4. Impurities, if present, such as chaff, sticks, dirt, weed seeds, etc. should be screened and fanned out before storing.

If the combine or the separator has not been cleaned thoroughly, you can help prevent contamination by catching the first bushel or two of grain and using it for purposes other than seed.

Problem 8

How to judge and exhibit crops:



It is worth while and very desirable and even profitable to show a sample of good grain. Such a sample should be prepared and exhibited at the community, county, or state fair. Of course, the attractiveness of the grain and the container are very important. It should be labeled as to variety.

But, in order that you may exhibit a good sample of grain it is necessary to know what is a good sample of grain. That, of course, suggests the problem of grain judging. The pamphlet, "Some Pointers for 4-H Crops Judging", will give excellent help. A judging team should be organized to compete at the county and state fairs. You can receive valuable training and assistance in judging by attending the district judging schools held each summer in June or July. Your county agent can tell you where and when they are held. A demonstration team should also be selected. Suggestions for demonstrating some phase of your project are give below:

1. Treating seed for smut.
2. How to keep the seed pure.
3. Determining the test weight per bushel.
4. Cleaning and spraying grain storage bins.
5. Fumigation of stored grain.
6. Rye admixtures in wheat.
7. Moisture in stored grain.
8. Kinds of kernel damage effecting market grade.

Note: Several of the circulars mentioned in the lesson material have been replaced. Note these changes:

Page 6 - Reference should be - Neb. Bul. 389 - "Growing the Winter Wheat Crop".

Page 7 - Reference should be - Extension Circular 1809 - "The Whys and Hows of Cereal Seed Treatment".