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A HOME COURSE IN AGRICULTURE

VII--The Selection of Seed

By C. V. GREGORY

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ONE of the most important factors in crop production is the selection of seed. This is important not only in producing a large yield, but also in obtaining a product of the highest quality.

The use of the fanning mill as a means of sorting out the heaviest, plumpest grains was spoken of in the previous article. The importance of this means of seed selection cannot be too greatly emphasized.

One of the principal reasons for selecting the largest grains for seed is that they contain so much more food for the young plant. This enables it to make a strong, vigorous start. Such plants have more vitality, grow faster and produce larger yields than plants from shriveled seeds, which have a struggle for existence from the time they germinate. Another reason for selecting plump seed is that the resulting crop is likely to be of better quality and will thus bring a higher price when sold. The old law of "like produces like" applies to plants as well as to animals. One of the surest ways of bringing about improvement is by using parents of the desired type year after year.

Selecting seed according to size by screening out the small grains is not



FIG. XIII--GOOD AND BAD TYPES OF SEED WHEAT. (Note the shriveled, shrunken condition of the kernels to the left.)

enough. Some of the largest grains are shriveled and light in weight. The only way to separate these is to use plenty of wind in the fanning mill so as to blow them over. Such grains are all right for food, but are entirely out of place in the seed bin. This method of selection is especially important in the case of wheat, as it separates the hard from the soft ones to some extent, since the soft ones are lighter. Hardness is an important factor to look after, since a hard wheat is much more valuable for milling purposes, making a larger amount of high-grade flour.

If the most value is to be obtained from the selection of seed means definite plan of improvement must be followed. By a little care a variety of wheat or oats may be so bred up as to increase the yield from ten to twenty bushels per acre. The work is a small item as compared with the benefits.

In starting the work of breeding the variety which does best in your particular locality should be selected. Go into the field just before harvest time and select forty or fifty of the best heads. In doing this the size and plumpness of the grain and the length of the head should be considered. This latter point has a great deal to do with the yield, since a long head often contains twice as much grain as a shorter one. The character of the straw is also important. It should be straight and strong, with no tendency to rust, as a weak straw or one that is badly rusted cannot hold up a heavy head of grain. Another point to notice is the stooling—that is, the number of stalks that grow up from one seed.

When the required number of such heads have been found they should be put away in a dry place until spring, when they should be thrashed out separately and planted in a little plot in the garden. The seed from each head should be sown in a row by itself. The rows should be about four inches apart and the plants the same distance apart in the row.

As harvest time comes on a great difference in these rows will be noticed. Some will be badly affected with rust. Some will have weak straw and will go down badly. Some will have short heads containing but a few grains each. A few of the rows will contain plants and heads of the type you are looking for. Select the best heads from these rows to plant in next year's plot.

The second year, if the first year's selection was properly carried on, considerable improvement will be observed. This year the seed from each of the strongest rows should be saved in bulk after sorting out any heads that are not of the required type. The seed from each of these rows is to be planted in a little plot by itself the following spring.

Notes on these plots regarding the strength of straw, amount of stooling and resistance to rust should be carefully kept. The main point to be considered, however, is the yield. The grain from each of the plots should be weighed and the preference given to the heaviest yielders. Seed from five or six of the best producing plots may then be saved for larger plots the fourth year. The yield of these, together with the quality of grain and strength of straw, will determine which strain is to be selected for field use.

A factor which often cuts off as much as 10 per cent from the yield of small grain is smut. Unlike rust, the treatment of this disease comes more under the head of preparation of the seed than that of selection. It may be

well, however, to give a brief outline of the methods of prevention here.

Smut is a fungous growth—that is, a low form of plant which lives on other plants. It usually attacks the heads of small grain, filling the place where the kernels should be with a black, worthless mass. The black dust of which this mass is made up is comprised largely of spores, which correspond to seeds of higher plants. These spores become scattered over the seed in thrashing and storing. In the spring, when the grain sprouts, the smut spore germinates also and sends a tiny thread up through the stem to the head, where it develops into the familiar smut ball. Often these smut balls are inside of a hull that appears perfectly sound from the outside, so that the damage from smut is much greater than would appear from simply glancing over the field.

Any method of treatment which will destroy the smut spores on the grain will prove effective, although the smut which is scattered in the field sometimes infects the plants the next year. When rotation is practiced, however, this is seldom the case, as the oat smut will not attack corn, nor will corn smut grow on oats.

The selection of seed corn is even more important than the selection of small grain, since so much less corn is required to plant an acre, thus permitting of much more careful choice. The most important point to be considered in the selection of seed ears is maturity. An ear that is not entirely mature will be light, the kernels will be loose on the cob and have a dull, chaffy appearance, and the germs will be shrunken and the back of the kernels wrinkled.

Such corn should not be selected for seed because the amount of food material stored in the kernel is too small to give the young sprout much of a start. The corn is also likely to be weak from being frozen while still in the immature, watery condition. The fact that an ear is not entirely ripe indicates, too, that it belongs to a variety just a little late for the locality.

Ears that are not entirely ripe are not nearly so valuable for seed as ripe, milder ones, even if the latter are not so large. By selecting only ears of this early maturing type a strain of corn can soon be developed which can be depended upon to ripen in the particular locality in which it is grown.

Since the size of the crop depends to a considerable extent on the size of the ear the seed ears selected should be as large as is consistent with early maturity. Mere size of ear is not enough, however. The ears should be well proportioned and not too big around for their length, since ears of this sort are late in maturing and slow to dry out. The size of an ear should be made up of corn instead of cob. This means deep kernels and a relatively small cob.

There must also be the largest possible amount of corn in proportion to

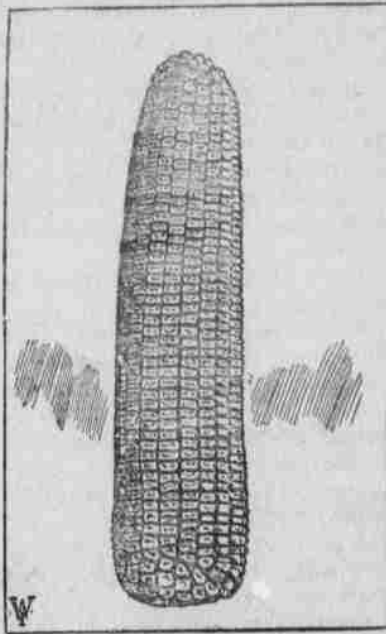


FIG. XIV--A SPLENDID TYPE OF SEED EAR, the cob. To secure this the ear should be well filled out at butt and tip and fairly uniform in size from end to end. The kernels should be so firm on the ear that it cannot be twisted in the hands. There should be no spaces between the kernels next to the cob, nor should the spaces between the tops of the kernels be too great. They should not be packed together too tightly at this latter point, however, as this hinders rapid drying out. The rows should be straight and the kernels of uniform size.

In starting out to select ears of the desired type the work can be done much more quickly if the corn is laid out on a table or bench. Then by taking an ear for a sample which most nearly represents your ideal you can go over the entire lot and quickly pick out the ears that are most like it. The point of selecting ears of a uniform type is an important one, as only in this way can the corn grower hope to make improvement from year to year. The methods of breeding corn to secure increased yield will be taken up in detail in the next article.

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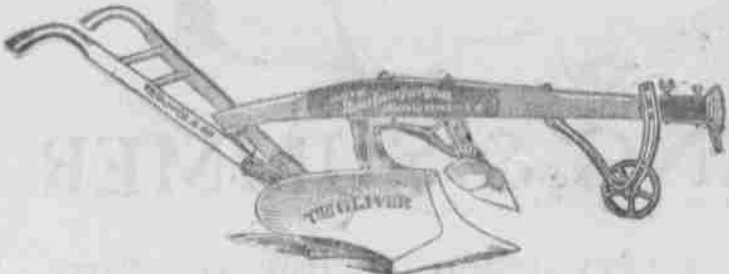
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