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Corn Growing in Ohio

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CORN GROWING IN OHIO

Grow Varieties Adapted to Locality.—There are several hundred varieties of corn grown throughout the corn belt states. These varieties differ widely in size of ear and stalk, color of grain, habit of growth, and the time required to mature the crop. Since there is a wide variation in the length of the growing season in different sections of Ohio, it is highly important that those varieties of corn

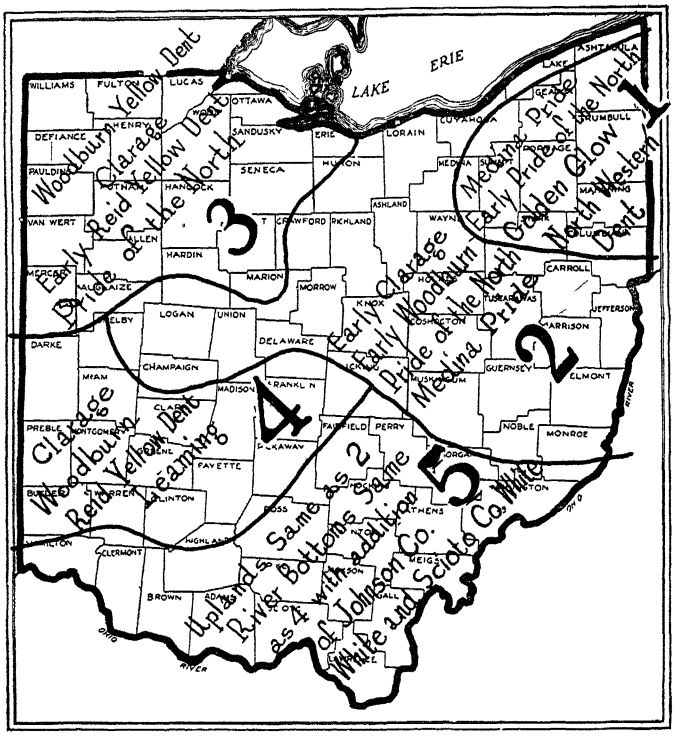


Fig. 1.—Map showing varieties of corn best adapted to different sections of the state.

be grown that fit best into the length of the season prevailing in each area.

The use of a very early variety maturing in 105 days in the southern part of the state, where a longer seasoned variety easily matures, will almost surely give a decreased yield, since the growing season would not be fully utilized. On the other hand, it is probably a more serious mistake to attempt to grow a variety of corn that normally requires 125 days to mature, in a section where the prevailing season is only 100 days. Such an attempt would most likely result in an inferior quality of corn due to immaturity.

The accompanying map of Ohio shows the different corn producing districts in the state, together with a list of the leading varieties that are adapted to each district. Practically all the factors which affect the yield and adaptation of corn, such as soil, elevation, topography, rainfall, temperature, and length of the growing season, were considered in determining the boundaries of these corn growing districts. The writers, in their work with corn in Ohio, have also checked these records with observations on the size and type of corn grown in the different districts. It should be kept in mind that many local varieties in each section,

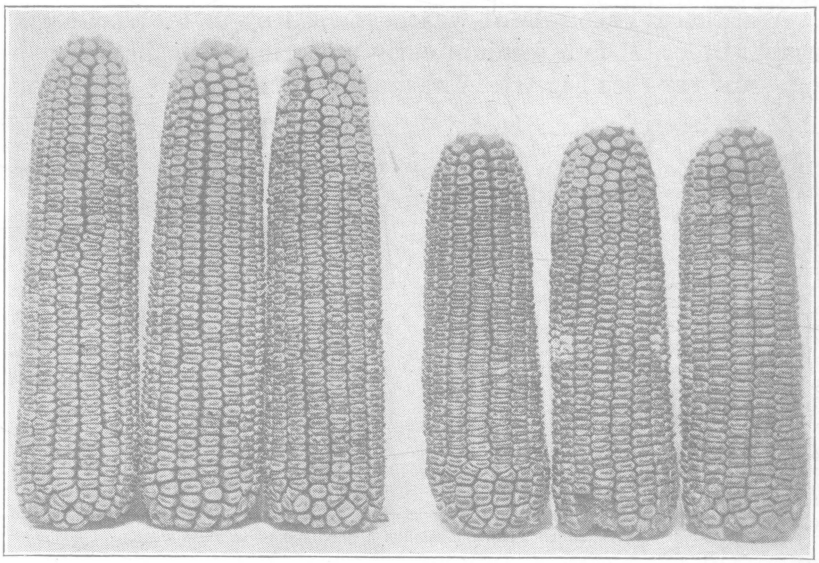


Fig. 2.—Two distinct types of Clarage corn. The three ears on the right are earlier in maturity than the three on the left.

not included in this list, are well adapted and are giving good results.

Strains of One Variety Differ.—Corn, like other plants, will become adapted to a given set of growing conditions after a few years if properly selected. Any variety of corn grown and selected for a number of years in southern Ohio requires a longer growing season than seed of the same variety that has been produced in northern Ohio.

Figure 2 shows two strains of Clarage corn—one grown in southern Ohio and the same variety grown in northwestern Ohio. Note the difference in the size and type of the ears. Hence the practice of moving corn very far in any one year is not advisable.

Description of a Few Leading Varieties

Clarage is a yellow corn which is fast growing in popularity throughout the state. It has proved its worth in yield tests in competition with the large late types of corn. The stalk is medium in size. The ears range from 7 to 10 inches in length, and are inclined to be somewhat slender; the usual number of rows per ear is 16, with a few ears having only 14 rows. The cob is medium to small (see Fig. 2). Clarage matures a week to ten days earlier than most strains of Reid Yellow Dent. An early variety may easily be grown in District 2.

Woodburn Yellow Dent was developed by J. D. Woodburn of Urbana, Ohio. It is a medium early maturing corn, having a medium sized ear (see Fig. 3). The stalk is rather small. The grains

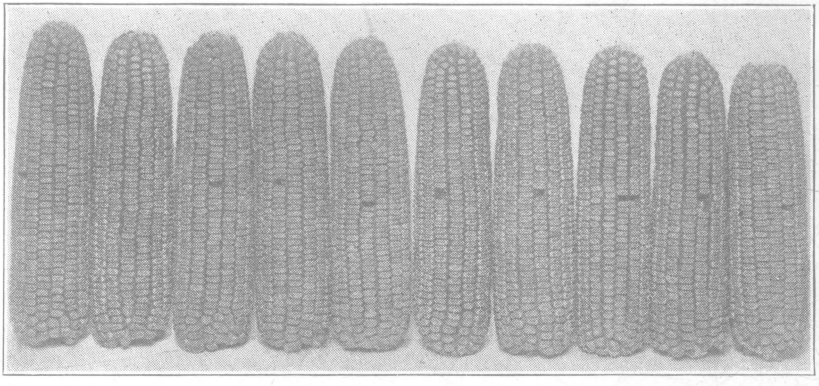


Fig. 3.—Woodburn Yellow Dent has a good record in yield tests.

are somewhat wide and have a very characteristic golden yellow color. Woodburn Yellow Dent corn has a good record in yield tests, as it has frequently been the high yielding variety in the Ten-Acre Corn Contest in this state. One of the features of this variety is its high shelling percentage, resulting in a large yield of shelled corn to the acre. An early variety has been developed which does well in District 2.

Northwestern Dent is a very early maturing variety of corn, and should be adapted to District 1 where the shortest season prevails. A slight modification of this variety is known as Smoky Dent.

The grains are red with a white cap. Usually there are only 12 rows of grains. This variety should mature early enough to be safe in any season for northeastern Ohio.

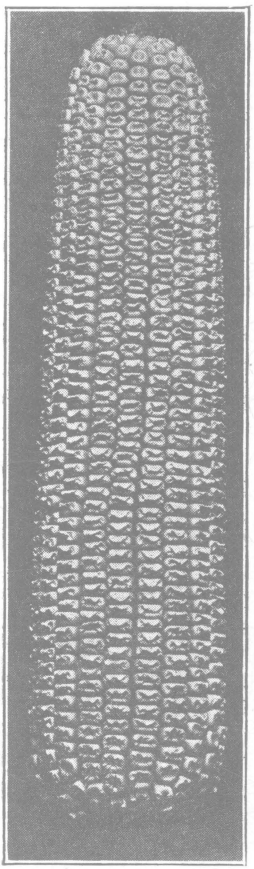


Fig. 4.—Reid Yellow Dent

Reid Yellow Dent is the old standard corn of southern Ohio. It is especially adapted to the rich river bottom lands in Ohio's corn belt. Reid Yellow Dent is a rather large, late maturing type, producing ears ranging from 8 to 10½ inches long. Reid Yellow Dent corn owes its great popularity to its record in the yield tests and to the many winnings in the show ring. No other variety of corn, known by the writers, seems to produce ears of such uniform type.

While this variety is mainly adapted to southern Ohio, some of the earlier strains are produced with safety on the better soils in District 3.

Leaming corn was developed by J. S. Leaming near Wilmington, Clinton County, Ohio. The ears are yellow, decidedly tapering, with a very large butt and an irregular setting of the kernels. The indentation is usually a dimple dent. It is of medium early maturity for the southern half of the state. The so-called Improved Leaming has somewhat larger ears, more regular rows of grains, and is later in maturity. Leaming has been grown for Many years in central Ohio.

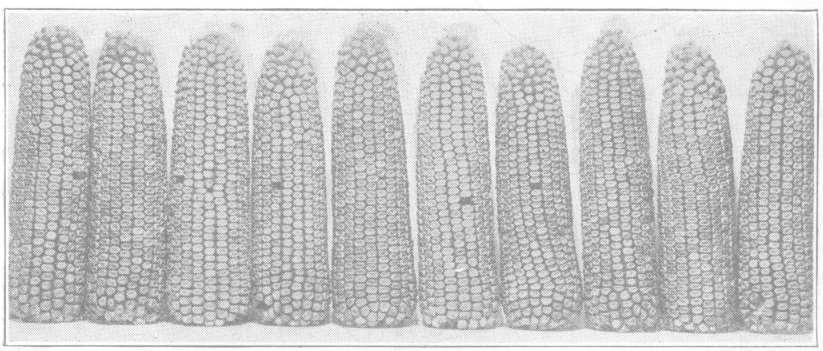


Fig. 5.—Leaming is quite popular throughout central Ohio

Boone County White is sometimes called Johnson County White in this state. While these two varieties or strains were originally different they are now practically identical in most features. It is a large, late maturing variety, and can only be grown on the rich river bottom soils of southern Ohio. The ear is cylindrical, and white in color, with straight rows of deep kernels. It produces large yields, but on account of its late maturity the moisture content usually is high and hence there is frequently a good deal of immature corn.

Scioto County White is a pure white variety grown largely in the Scioto River Valley from Portsmouth north to Chillicothe. It is an earlier maturing variety than Boone or Johnson County White. The kernels are wide and more shallow than the Johnson County White; the indentation is medium. It was originated in this sec-

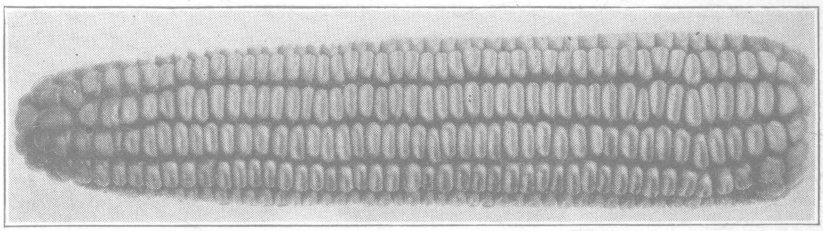


Fig. 6.—Medina Pride. Yield tests show that this variety has been consistently high.

tion of the state and is now the chief variety grown throughout this valley.

Pride of the North is an early maturing variety of yellow dent corn. It should mature safely in Districts 2 and 3. Early strains of this variety may safely be grown in District 1.

Medina Pride is a variety grown to some extent in northeastern Ohio. It has a pale yellow, slightly tapering ear. Medina Pride has been consistently high in yield tests conducted in northeastern Ohio. It matures early and produces satisfactory yields of sound corn.

Golden Glow was developed in Wisconsin and is quite early in maturity. The ears are bright yellow, with smooth indentation, and range from 6 to 8 inches in length. This variety is adapted for grain production in northeastern Ohio.

Selection of Seed Corn

Much has been said and written about the advantages of selecting seed corn from the standing stalk early in the fall. Unfortunately, comparatively little seed corn is selected in this manner. Carefully planned experiments have shown that an increased yield of from 2 to 3 bushels an acre is secured from planting corn that has been field selected and properly stored as compared with other selection methods. It should be kept in mind that one bushel of corn is sufficient to plant 6 or 7 acres, and that one man can select and properly store from 5 to 7 bushels in a day, or enough to plant 40 acres or more. Thus from a single day's work the returns in

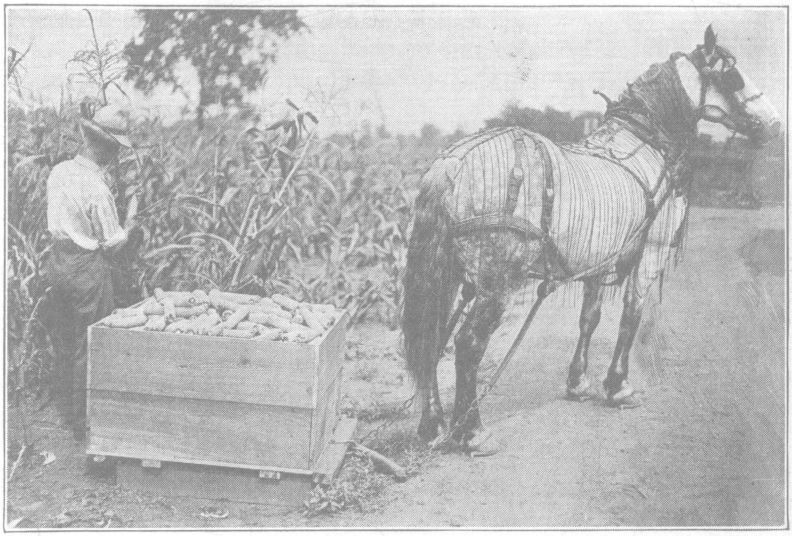


Fig. 7.—One method of selecting seed corn from the field.

increased yields may be safely counted as 100 bushels of corn. If this fact were common information, perhaps each year more seed corn would be selected and stored early in the season.

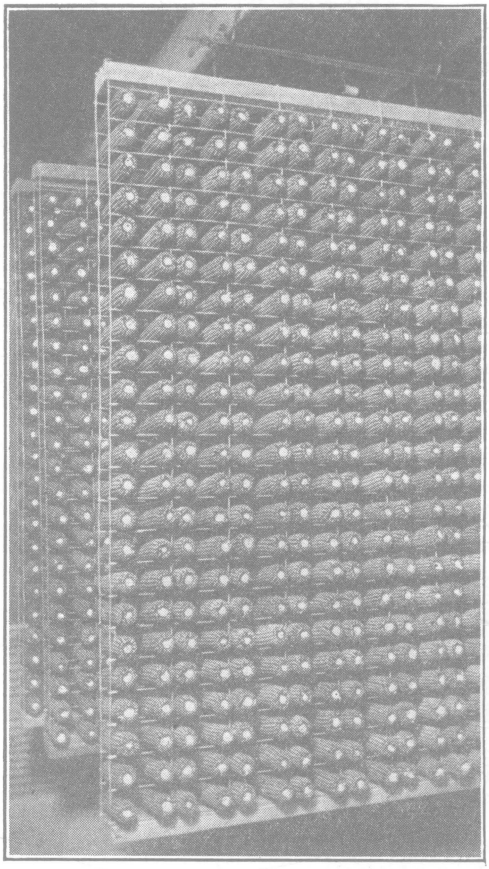
Consider only Important Factors in Selecting Seed.—Mistakes are frequently made in selecting seed corn from the standing stalks in the field. It should be kept in mind that the main purpose of this early selection is to insure having a good supply of well matured ears, properly stored so they will be thoroughly dry before severe weather occurs. It is not necessary or important that every ear be of such a type that it can qualify in the show ring. The following suggestions should be kept in mind, therefore, and for the time being all other points neglected:

1. Select sound, mature ears.
2. Select only ears free from mold.
3. Select ears borne on sound, strong shanks.
4. Select ears from vigorous, green, healthy stalks.
5. Select ears borne at a convenient height from the ground.

With these points in mind many ears will be chosen that do not conform to the standards for a good seed ear in the mind of the grower, but a study of the ear characters can be made more easily the following winter or spring, and the undesirable ears discarded. It is wise, therefore, to select two or three times as much seed as is required for planting, so that many ears can be discarded and still leave enough good seed for planting.

The Storing of Seed Corn

While the early selecting of seed corn is important, it is even more important that this early selected corn should be carefully stored immediately after selecting. In fact, all seed ears should be stored the same day they are harvested, in a dry, well ventilated place and in such a manner that no two ears touch.



Gig. 8.—Drying rack made of woven wire fence.

Racks Essential to Quick Drying.—It is almost impossible to store corn so that no two ears touch without the use of some kind of a drying rack. There are many patented seed corn racks and hangers on the market, all of which are satisfactory, but equally good results may be obtained through the use of home made racks or hangers. Fig. 8 shows a device made by doubling a section of wire fence, of uniformly spaced horizontal wires, over a 2 by 4 and suspending it from the ceiling.

Causes of Damage in Storage.—Corn is liable to mold when drying takes place slowly. Often the ear appears perfectly bright and fine looking, but has been found to be quite worthless for seed purposes because of molds that have developed on the tips of the kernels at the cob. Unless the drying is fairly rapid there is always the chance that cold weather will come before the moisture content of the corn is low enough to prevent injury by freezing. Early field selected corn usually contains from 35 to 45 per cent of moisture. In order to withstand low temperatures the moisture content must be reduced to 15 per cent or less.

When corn is stored in racks or hangers in a dry, well ventilated place, drying takes place rapidly. Corn that has been selected early in the fall, and stored in such a way that the moisture has had an opportunity to escape, seldom is injured by freezing.

More Seed Corn Storage Houses Needed.—Only a very few farmers have made provision for properly storing seed corn. While seed oats or wheat may be stored in exactly the same manner as the regular market grain is stored, an entirely different problem presents itself in storing seed corn.

To be sure of having good seed corn, it should be selected early in the fall, when the moisture content is high, and dried out rapidly. To take proper care of seed corn a seed corn storage house is almost a necessity. Such a house should provide ample room for drying racks, be mouse proof, and should include a simple heating system for use in particularly unfavorable seasons.

The writers have observed only a very few good seed corn storage houses in the entire State of Ohio, although they have worked on seed corn problems in practically every county in the State.

Artificial Drying Not Usually Necessary.—While the use of artificial heat may be an additional safety factor in the drying of seed corn, for most seasons in Ohio it is probably not necessary. In the northern part of the state more trouble is experienced in drying seed corn thoroughly than in southern Ohio, and hence in this part of the state some provision for providing a little artificial heat may be advisable.

When supplying artificial heat for drying seed corn it is not necessary or wise to allow the temperature to go higher than ordinary living room temperature. The germination of corn can be injured by too high temperatures just as severely as by too low temperatures.

It is always wise to provide ample ventilation when drying seed corn, as otherwise molds may develop very rapidly.

Culling Seed Corn

Culling is a step in the process of securing good seed corn. It consists in carefully examining each ear for indications of dead germs, disease, immaturity, and other defects, and discarding all defective ears. It should be kept in mind that culling is not a substitute for field selection and early drying of seed corn, but it is the next logical step after the corn has dried out in a suitable storage place. Culling seed corn, therefore, is usually done during the late winter or early spring months.

No special equipment is necessary other than a sharp knife and good eyesight. The work should be done in a well lighted, comfortably heated room.

Examine Each Ear for Moisture Content.—A good ear of corn should feel dry and firm. If the ear feels moist and can be easily twisted in the hands, the chances are that the cob is still wet and the grain may contain enough moisture to have been injured by freezing. Discard all such ears.

Extremely Rough Ears are Objectionable.—Very rough ears are usually light in weight, and frequently have soft, starchy kernels with a dull luster. Such ears are susceptible to disease. These ears are also more liable to be injured by handling, resulting in the breaking off of the sharp beaks and exposing the inside of the kernel to molds.

Immature Ears are Usually Light.—Immature ears are usually light in weight and have a dull, faded, starchy appearance. The kernels are frequently shrunken at the tip, making the ears loose and causing open spaces between the kernels at the cob. Immature ears are lacking in vitality and reserve food supply. While such ears may show a high germination, they will not withstand unfavorable weather in the early stages of growth in the field. Such ears should be discarded.

Moldy Ears are Diseased.—One of the main objects of culling seed corn is to obtain seed as free from disease as possible. Molds are an evidence of disease, and therefore all ears showing molds should be thrown out. Sometimes only scattered kernels on an ear are moldy. These are usually associated with a cracking of the caps of the kernels. All ears showing any splitting or cracking on the sides, backs, or caps of the kernels should be discarded. A slight mold on the kernels may be detected by a faint white or gray streaking and a dulling of the luster. On some ears only a small patch or portion appears moldy. Usually the sur-

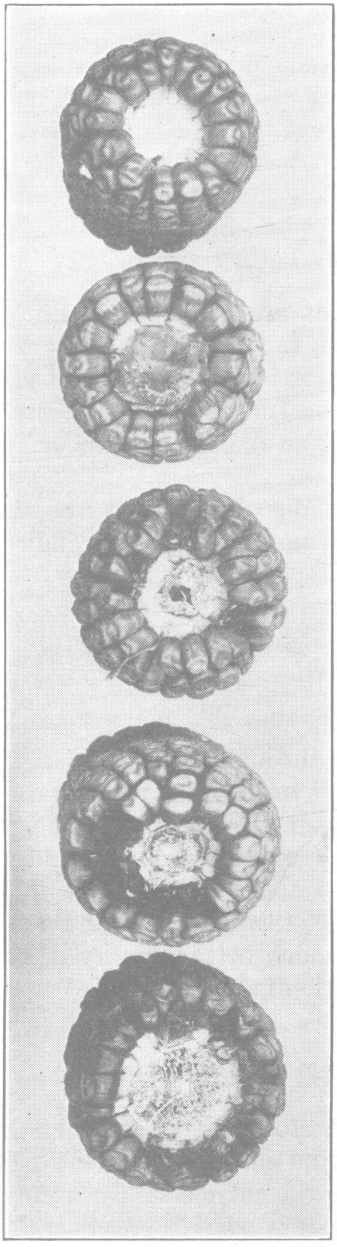


Fig. 9.—Appearance of earshank.

Reading down:
1. Clean, healthy.
2. Green surface mold.
3. Slightly discolored.
4. Discolored.
5. Shredded.

Ears 1 to 3 may be used for seed.
Ears 4 and 5 should be discarded.

rounding kernels are infected, and, since the extent of the infection cannot easily be determined, it is wise to discard the entire ear instead of shelling off the moldy patch.

Discard Ears with a Shredded or Discolored Shank.—A healthy ear should have a clean, white, silky shank that breaks off smoothly. Often the shank has a ragged, shredded appearance and is frequently discolored instead of being white. This condition is a fairly reliable indication of disease. All ears should be discarded that show a red or brown discoloration, or that show a shredded or ragged shank. A green or black discoloration on the shank usually indicates poor storage conditions. The color is the result of mold that developed on the surface of the shank while the cob still had a high moisture content. This is not necessarily an indication of a diseased condition of the kernels. This shank should be examined, however, and if the mold is only on the surface and does not penetrate into the cob there is no need of discarding such an ear.

Mice Injury and Weathering are Objectionable. — Excessively weathered ears have a dull, bleached appearance and are weakened in vitality. Kernels injured by birds, rats, or mice, so that the seed coat is broken, are not desirable, as experience indicates that a sound seed coat is an important factor in preventing disease infection. This seed coat may be compared to the skin on the human body permitting disease organisms to enter only where it is broken.

What the Kernels Tell

The Germs May Be Dead.—It is often said that beauty is only skin deep. This is particularly true of an ear of corn, for while the outside appearance of the ear may be good, a close examination of the kernel may show that the germ is dead. A live germ is creamy white in color, waxy in texture, and shaves like a cake of soap. Dead germs are dull yellow or brown in color. Sometimes the germ is quite soft and very watery, or it may be dry and brittle.

Badly Blistered or Discolored Grains are Worthless.—Blistering may occur on the sides, back, or germ face of the kernels. This may be caused by freezing, weathering, or immaturity. The presence of only one or two small blisters on the germ face is due to drying out of the germ, and hence is not an indication of poor seed condition.

The kernels should not carry any discoloration at the tips. Frequently black tips are seen, which may or may not indicate poor seed condition. If many of the kernels from one ear show them, the chances are that the ear is not desirable for seed. Another indication of poor seed condition is to have a portion of the cob pulling out when a kernel is removed.

Avoid Starchy Kernels.—Soft, chalky, or starchy kernels are those in which the soft starch shows through the backs of the kernels. A desirable kernel is one that is horny in texture and has a bright, oily luster. Experiments seem to indicate that soft, starchy kernels are susceptible to disease and such ears should not be used for planting.

By carefully culling seed corn and discarding all the ears that show the weaknesses here described, a much better quality of seed corn can be secured than if this precaution is not taken.

Germination of Seed Corn

Even though seed corn is culled carefully, there are ears that are always in the doubtful column. Some ears may look all right in every respect and yet when planted will not grow. In order to insure perfect germination in seed corn it is wise to cull it according to the instructions already given, and then check on the efficiency of the culling by use of the germination test.

Most Practical Germinator is Rag or Paper Doll.—Various types of corn germinators have been devised, ranging from the

sand or sawdust box to elaborate patented devices that cost a rather large amount of money. Perhaps all are satisfactory, but none is better than the so-called "Modified Rag Doll" germinator. The method consists of using a strip of heavy glazed paper upon which is placed a strip of wet muslin. After the grains are placed upon the muslin the whole thing is rolled up to form the doll.

A recent modification of this method is the use of paper toweling instead of the muslin. The rag doll then becomes a "paper

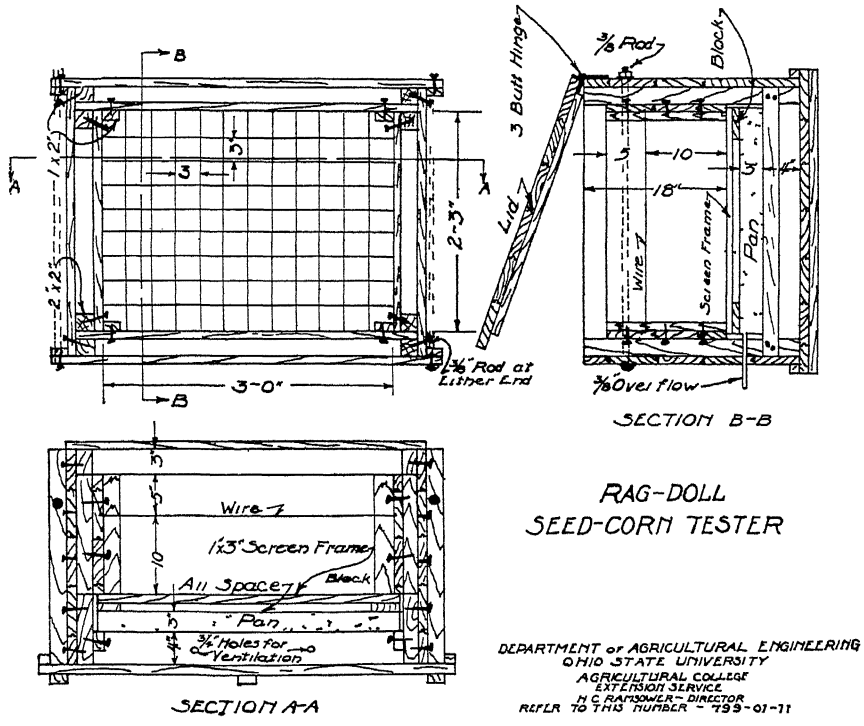


Fig 10 —Working plan for making rag doll seed corn tester

doll." As soon as the paper dolls are made up they are placed in one of the compartments in the germinator, which is constructed especially for the purpose. The germinator consists of one box built inside another. One of the chief advantages of this method is the large capacity afforded and the ease with which a larger or a smaller number of ears may be tested. A tester that is only 3½ feet long, 3 feet wide, and 2½ feet high will accommodate 108 dolls with 20 ears each, or a total of 2160 ears, which means about 25 bushels of corn.

Working plans for constructing a tester are shown in the ac-

companying illustration. Instructions for making up the dolls are given below:

Instructions for Using Rag or Paper Doll Seed Corn Tester.—

1. Secure heavy pearl fibre water finish paper such as is used in butcher shops for wrapping meats. This can be secured in 12-inch widths from any of the larger paper companies.
2. Instead of using muslin it is recommended that paper toweling be used in order to eliminate work of cleaning and sterilizing towels. The paper toweling can also be secured from the paper companies.
3. To make dolls observe following suggestions:
   a. Cut off 54-inch length of the heavy paper.
   b. Place on top of this a strip of paper toweling about 45 inches long.
   c. Sprinkle towel thoroughly so it adheres closely to heavy paper beneath it.
4. Remove at least eight grains from each ear. As the grains are removed, place the ears in a rack or on a shelf in the same order that the grains are placed on the doll.
5. Place the kernels germ side up in a straight line across the towel, with tips of grains all pointed same direction.
6. Two inches from this line place an equal number of kernels from the second ear, etc.
7. Each doll should accommodate 20 ears.
8. After placing kernels from the twentieth ear, start at the end containing last ear and roll up the heavy paper together with corn and towel into a roll.
9. Keep from unrolling by placing a rubber band around each end of the roll or doll.
10. Place in tester and water generously each day. About 8 quarts of water should be used twice a day for a tester full of dolls.
11. Keep in tester for six or seven days then remove and read the results.
12. Discard all ears showing dead kernels or decidedly weak sprouts.

Lessons from Ohio's Leading Corn Growers

Corn is Adapted to a Wide Range of Soils.—Since the year 1917 there has been conducted in Ohio a ten-acre corn contest. More than 700 of the best corn growers of the state have taken part in this work, and 100 of these men have succeeded in producing 100 bushels per acre. These 100 men are distributed over 34 counties. While most of these counties are in the western part of the state, there are some in eastern Ohio. This brings out the fact, therefore, that corn can be grown very successfully in any section of Ohio and, furthermore, that large yields may be grown on a great variety of soils.

Depth of Plowing Should Be from 6 to 8 Inches.—It is rather difficult to draw conclusions as to the best depth of plowing from analyzing the methods of the men referred to above, but there seems to be rather general agreement among them that land should be plowed at least 6 inches deep, and most of them prefer somewhat deeper plowing. Perhaps a safe recommendation would be that land should be plowed to a depth of from 6 to 8 inches.

Well Prepared Seedbed Best.—There is no one method of preparing a seedbed that has been found best for all conditions. The kind of seedbed that is preferred by practically all the men is one that has been stirred to kill all weeds immediately before planting, and that is compact but has enough loose fine soil on the surface to cover the grains well.

Cultivation of Corn.—That there is a great difference of opinion in regard to the number of times corn should be cultivated is quite evident when a survey is made of the methods used by the successful corn growers. Some maintain that corn should be cultivated at least three or four times in order to control weeds, to maintain good tilth, and to conserve moisture. Others claim that the only reason for cultivating corn is to kill weeds, and that if one cultivation is sufficient to keep the field clean, there is no need for any more cultivation.

The actual number of cultivations given by these men varies widely. In fact, 100 bushels of corn per acre has been produced in Ohio without cultivation. On the other hand, a number of growers have produced 100 bushels per acre with five or six cultivations. The great majority of these high yields have been produced with three or four cultivations.

There is no doubt but that one of the main reasons for cultivating corn is to kill weeds. Killing weeds is not the only consid-

eration, however. Some soils have a tendency to become very compact and hard if given no cultivation. Other soils remain in good tilth with little or no cultivation. Thus it seems that the type of soil to a great extent will determine the needed number of cultivations. One field of corn may yield well with only one cultivation, whereas another field of corn having an entirely different type of soil may require several cultivations.

Shallow cultivation is generally conceded to be better than deep cultivation. It is common practice to cultivate rather deep the first time, with all subsequent cultivations quite shallow.

Adapted Varieties Make Best Yields.—The men who have produced large yields of corn in the Ten-Acre Corn Contest take every precaution to use only those varieties that are almost sure to be safe in maturing. An analysis of the data on varieties used by them reveals the fact that medium season varieties are generally used. A few high records have been made with the large, late maturing varieties, but these have only been used under conditions where the type of soil and length of season have apparently justified their use.

Importance of Good Seed.—In addition to making sure that they were using the best adapted varieties, every effort has been put forth by the contestants to secure the very best seed of those varieties. Some of the men in the 100-Bushel Corn Club have not depended on their own seed, but have purchased certified seed in order to be sure that only the best seed available was used. Most of them have carefully selected and stored their seed in the manner already discussed earlier in this bulletin. Their work of selecting and storing has been followed by culling in the spring, with particular attention to eliminating weak and diseased ears. To check on their ability to discard all undesirable ears they have made a germination test of a part or all of their seed corn. On account of the precautions taken, only the best possible seed has been used; this, to a great extent, has made possible almost perfect stands, which are a prime requisite to large yields.

Preceding Crop Influences Yield.—A study of the methods used by the 100-Bushel Corn Club members shows that most of them prefer to arrange their rotations so that alfalfa, sweet clover, or red clover immediately precedes corn. In a test on the Paulding County Experimental Farm, with a two-year rotation of corn, oats, and a legume plow-down crop, red clover has increased the corn yield 7.8 bushels, mammoth clover 7.5 bushels, and sweet clover 18.1 bushels.

Recent studies indicate that a good growth of sweet clover or alfalfa will supply sufficient nitrogen to meet the requirements of a 100-bushels-per-acre corn crop. Largest yields have usually followed alfalfa or sweet clover. When either alfalfa or sweet clover sod is to be plowed down for corn it is advisable to wait until the growth has started in the spring before plowing, in order to avoid having the alfalfa or sweet clover come up and interfere with cultivation.

Commercial Fertilizers Boost Corn Yields.—Not only do these 100-Bushel Corn Club members depend on the effect of the preceding crop to make conditions more favorable for a crop of corn, but they also realize that there must be an abundance of available plant food present in the soil, in order to secure maximum production. More than half of the 65 men who produced 100 bushels per acre in the Ten-Acre Corn Contest in 1925 used commercial fertilizer. The amount of fertilizer used varied from 100 to 1000 pounds per acre. The average amount of fertilizer for those who used it was 282 pounds per acre. Some of the men used 16 or 20 per cent acid phosphate, while perhaps a somewhat larger number used either a complete fertilizer or one that carried both phosphorus and potash. Judging from the results secured, it is safe to conclude that the use of from 250 to 500 pounds of a good grade of commercial fertilizer will return a fair rate of profit.

The fertilizer treatment for corn should vary with the kind of soil, the amount of manure available, and the preceding crop in the rotation. On farms where manure is available an application of 8 tons of well cared for manure, supplemented with acid phosphate, makes a good treatment for corn. On unmanured soils, where a good clover sod is plowed down an application of from 200 to 400 pounds of an 0-14-4 is suggested, except on sandy soils, where 2-12-6 is probably a better choice.

Where neither manure nor a clover sod is available, a 3-12-4 is suggested for sandy soils, a 2-12-6 for other light soils, and an 0-14-4 for dark colored soils. In applying the fertilizer, practically all of the men have broadcasted it before planting rather than fertilizing in the hill or row.

Experience indicates, however, that an additional application of 100 pounds of a 3-12-4 in the hill or row may be desirable when corn is planted late, or in backward seasons. This is especially necessary on the poorly drained, heavy clay soils.

Rate of Planting Corn Important.—In order to produce a large yield of corn per acre it is quite necessary that a good stand be

secured. Observations have shown that since the beginning of the Ten-Acre Corn Contest, a large yield has not been produced on a field with a poor stand. Not only must the stand be good, but the rate of planting must be thick enough to provide a large number of stalks per acre. While it is true that the ears will grow larger when the rate of planting is thin, it is not possible to make up in larger size of ear for the lack in number of ears. The results se-

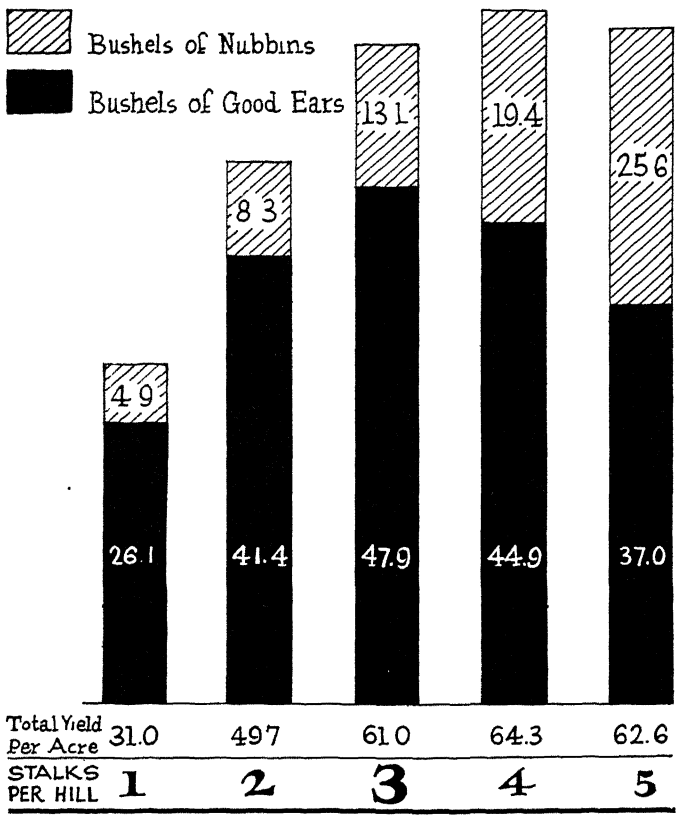


Fig. 11.—Results at Wooster, as an 11-year average, show that planting three stalks to the hill is most profitable.

cured in the Ten-Acre Corn Contest coincide with experimental results at the Ohio Agricultural Experiment Station at Wooster in regard to the effect of the rate of planting on yield.

The data presented in Fig. 11 give results obtained at Wooster as an 11-year average. It is seen that the largest yield was secured when corn was planted at the four-stalk rate. Since only a little more was grown with four stalks to the hill than with three stalks, and since the number of nubbins was considerably larger with four

stalks than with three stalks, it seems wise to conclude that under the conditions at Wooster the best rate of planting corn is three stalks per hill when hills are 3½ feet apart each way.

In determining the rate of planting corn the fertility of the land must be kept in mind. Unless the soil is liberally supplied with plant food, it is a mistake to plant corn unusually thick. On the other hand, a large yield need not be expected unless enough stalks are growing on the land to make it possible to secure a large yield if weather conditions are favorable. The field of corn that made the world's record yield in Ohio in 1926 was located in Hardin County and produced 168.66 bushels per acre as an average of 10 acres. It was planted in hills 34 by 32 inches, with an average of 3.8 stalks per hill. This placed more than 21,000 stalks on each acre.

The ordinary rate of planting is in hills 3½ feet each way, with an average stand of 2 to 2½ stalks per hill. With this rate of planting and 2½ stalks per hill the total number of stalks per acre is 8887. Very seldom, however, does it happen that a perfect stand is secured, so that the average number of stalks is more apt to be 2 or less rather than 2 or more. Thus the total number of stalks is, as a rule, probably less than 7000. With this number of stalks it is quite evident that very large ears must be produced in order to secure 100 bushels of corn per acre. To produce a large ear on every stalk is very difficult.

While it may not be possible to know definitely the best rate of planting for each field, a general rule governing the rate of planting for soils of varying fertility may be found useful. On soils capable of producing 25 bushels of corn per acre, plant 1 grain per hill, with hills 42 inches apart each way; on soils that will produce 25 to 50 bushels, use 2 grains per hill; on soils that will produce 50 to 75 bushels, use 3 grains per hill, and on soils capable of growing 75 to 100 bushels, plant 4 grains per hill.

When to Plant Corn.—Largely because of the weather, it is not possible to set a definite date to plant corn and always observe that date. Over a period of years, however, it is approximately right to say that corn should be planted about May 10. The records kept in the Ten-Acre Corn Contest show that the popular date for planting corn varies from May 5 to May 20, with the majority of men planting on May 10, 11, or 12.

Experimental work at Wooster is interesting in this connection. The results secured show that, as an 8-year average, there was very little difference in yield when corn was planted any time between May 5 and 20. However, after that date the yield dropped off very rapidly. From May 20 to June 6, a period of 16 days,

there was a decrease of 23 bushels per acre, or a loss of over 1 bushel per acre per day after the best date of planting was past. Fig. 12 gives these data in graphic form.

In the same series of experiments, the variation in moisture content of the corn when husked was recorded. After May 5 to 20 moisture content considerably increased (see top of Fig 12).

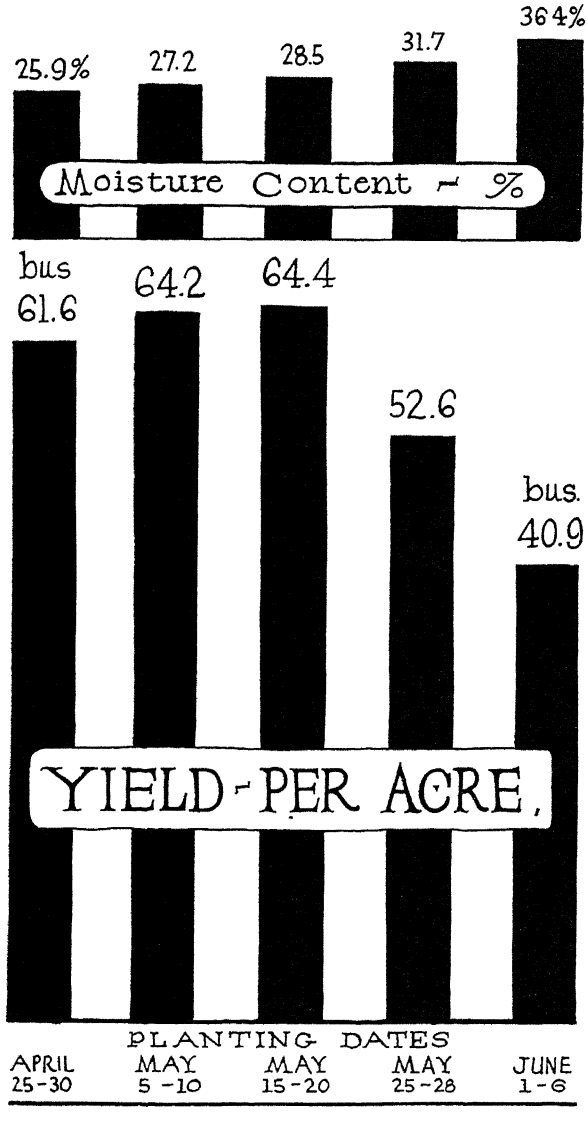


Fig. 12—Tests at Wooster show that corn planted between May 5 and May 20 gives best results. The variation in moisture content of this corn is shown above

While the largest yields of corn are secured from early planting, farmers may be compelled to resort to later planting in order to control the European corn borer. Late planting usually means lower yields and more immature corn at the end of the season. It may be possible that early maturing varieties will be developed that will mature satisfactorily even when planted late in the season. Furthermore, present indications are that through using the right fertilizers, the yield and quality of late planted corn may be improved so that it will more nearly compete with corn planted in proper season.