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SEED CORN AND SOME STANDARD VARIETIES FOR ILLINOIS.

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Illinois' annual corn crop, about 240,000,000 bushels, is raised on nearly 8,000,000 acres of land. It requires almost 1,000,000 bushels of seed corn to plant the corn fields of this state.

If the character of the seed has any considerable influence upon the crop produced, then the production and use of the best possible seed corn becomes a matter of tremendous importance.

What is the quality of the seed corn planted by the Illinois farmers? To answer this question it will be necessary to study the character of seed corn under several different heads.

Uniformity. As a rule little attention has been given to the character of the seed corn; little examination has been made of the proportion of corn to cob, of the purity of color, the space between rows, the filling out of ends, the length, circumference, or shape, or of any of the important points which go to make up a good ear of corn.

It has been found by seed corn growers that the length, circumference or shape of the ear can be varied at will by selection, and there is every reason to believe that these characteristics can be so fixed that practically all of the ears in a field grown from pedigreed, uniform seed will be of approximately uniform size and shape. Further, it has been found that the number of rows of

kernels on the cob, the filling out of the ends, or other characteristics, can be improved by planting from seed having these characteristics.

It has been demonstrated, that it is not good practice to plant small kernels of grain of any sort. Therefore, it is not good policy to plant the tip kernels. As the butt kernels usually vary greatly in size from the kernels on the rest of the ear, it is a good plan to shell off and discard both the tips and butts of the ears selected for seed. Again, as the butts of the ears mature first and the tips last, it is probable that these parts have been fertilized by pollen of an early or late variety from some neighboring field; so by shelling off the butts and tips, part of the danger of mixed seed can be avoided. In general, shell off the small and the extremely large kernels, so that the portion of the ear remaining for seed has kernels of approximately uniform size. With most varieties of corn, about one-half inch of butt kernels and one inch of tip kernels should usually be shelled off.

VITALITY. Owing to a late spring or early frosts, it frequently happens that the seed corn does not fully mature. In this condition the ear is likely to mold and decay, thus destroying the vitality of the grain. As the majority of farmers in Illinois allow the seed corn to remain in the general crib during the winter exposed to the sudden and violent changes in temperature, such corn, full of moisture, will freeze, and consequently the life of the germ may be weakened or destroyed. The seed corn in central Illinois, selected from the crop of 1898, was so much injured in this way that the University tests of the vitality of seed corn sent in by farmers from this section of the state, gave an average of only 76 per cent. germinating. Such seed was not fit to plant, but as no provision had been made by the farmers for drying and properly preserving seed corn, and as this was the only seed available, it was planted with a resultant poor stand, light crop, and loss of profits.

Immature seed should not be planted for several reasons: First, such kernels do not contain as much plant food as those which are fully developed, and thus do not provide as much nourishment for the young plants which, consequently, do not get so vigorous and healthy a start as those from mature seeds. Second, the excessive moisture in the immature seeds renders them liable to begin to germinate in the fall in the crib, and thus use up a part of their strength; or a sudden drop in temperature may freeze the corn and destroy the life of the seed.

Seed corn should test 95 per cent. vitality; i. e., of the seed

planted in the seed bed 95 per cent. should grow. If the seed does not give this test of vitality, a poor stand will be the result. Nor is it wise for the farmer to try to make up for poor seed by planting a greater number of grains, because of seeds which give a low test of vitality many of those which do grow lack strength and vigor and will consequently produce weak plants. Furthermore, an uneven stand will surely result, some hills being over-crowded (frequently with weak plants) and other hills being left with perhaps no plants at all because of the unequal distribution of the seed that will germinate. Seed of low vitality will inevitably tend to the production of a poor crop. It is important, therefore, that the farmer make a test of the vitality in order that he may know the quality of his seed. A most simple, effective, and practical method of testing the vitality of seed corn is as follow: Fill common dinner plates nearly level full of fine sand, pour water over the sand until it is more than saturated, shake gently to level the sand, allow it to settle, and then drain off the surplus water. Push 50 kernels into the sand in each plate, turn a smaller plate over the sand to prevent too rapid evaporation of moisture, and set both in a warm place. Keep the sand moist and in seven days all of the healthy kernels should sprout. By counting the kernels sprouted, the per cent. of good seed can easily be computed.

PEDIGREE. As a matter of fact the history of the development of most of the strains of corn now grown in the state, is very brief. With few exceptions no record has been kept of the various crosses, and but few varieties have been selected toward a particular type for a special purpose for any considerable length of time. There have been but few systematic or practical attempts at improvement, and the result is that we are, as a rule, growing mongrel or scrub varieties. A few varieties, however, have been carefully selected, in accordance with definite ideas as to improvement, for about a quarter of a century and have developed certain characteristics, distinguishing them from other varieties. In such instances it has been found that, if the corn has been selected toward a uniform standard type, the yield has been increased because of the production of uniformly better ears. The yields of varieties tested at this Experiment Station from 1888 to 1900, inclusive, show the same result. Also enough has been accomplished to prove that almost any characteristic desired in a variety can be fixed by persistent selection, and that these characteristics can be continually improved by further selection.

The development of the per cent. of sugar in the sugar beet furnishes a splendid illustration of the possibilities of plant breed-

ing. Starting with ordinary beets with about 4 per cent. of sugar, the French and German seed growers by selection have increased the sugar content to an average of 12 to 16 per cent. making it possible to manufacture profitably sugar from this source. There is little doubt that there are as great or greater possibilities in the corn plant, and that these possibilities can be as easily developed as the increased sugar content of the beet. The development of our present breeds of cattle and other live stock plainly shows how careful, systematic, and intelligent selection and breeding have improved these breeds. We have developed the dairy type and the beef type from the same source; the light and draft horse from the same type by breeding and selection.

Corn responds to selection as readily as do beets and cattle, and there is no longer any doubt but that varieties of corn can be further improved by similar methods.

It has been found that the chemical composition of the corn kernel varies, and the experiments conducted by this Station have conclusively shown that the proportion of the constituents of chemical composition can be varied at the will of the breeder (Bulletin No. 55, Illinois Experiment Station, "Improvement in the Chemical Composition of the Corn Kernel.") In other words, it has been found possible to increase or decrease the proportion of oil, or of starch, or of protein, by seed selection. When seed high in protein is planted, a product high in protein is the result and *vice versa*. The same thing holds true with seed high in starch, or oil.

What is true of the chemical composition, is eminently true of the physical characteristics of the ears; For instance, the shape of the Leaming kernel has been changed by twenty-five years of selection from the original shoe-peg shaped kernel to a broader, deep grain with a deeper dent. Along with this variation in shape of kernel has gone an increase in length of ear and a slight increase in circumference. Again, in the case of the Boone County white variety, the tips of the original corn were poorly filled. This fact was due principally to the reason that the Boone County white ears are very long. As an ear matures from the butt towards the tip, the tip maturing last, it frequently happened that the pollen was all gone before the tips of some of these ears had been fertilized. By selecting for seed corn only those ears which were well filled, in other words, the ears all parts of which matured in time for the pollen to fertilize them, the best samples of this variety have become well filled at the tips.

The Golden Eagle corn was originally a medium to shallow

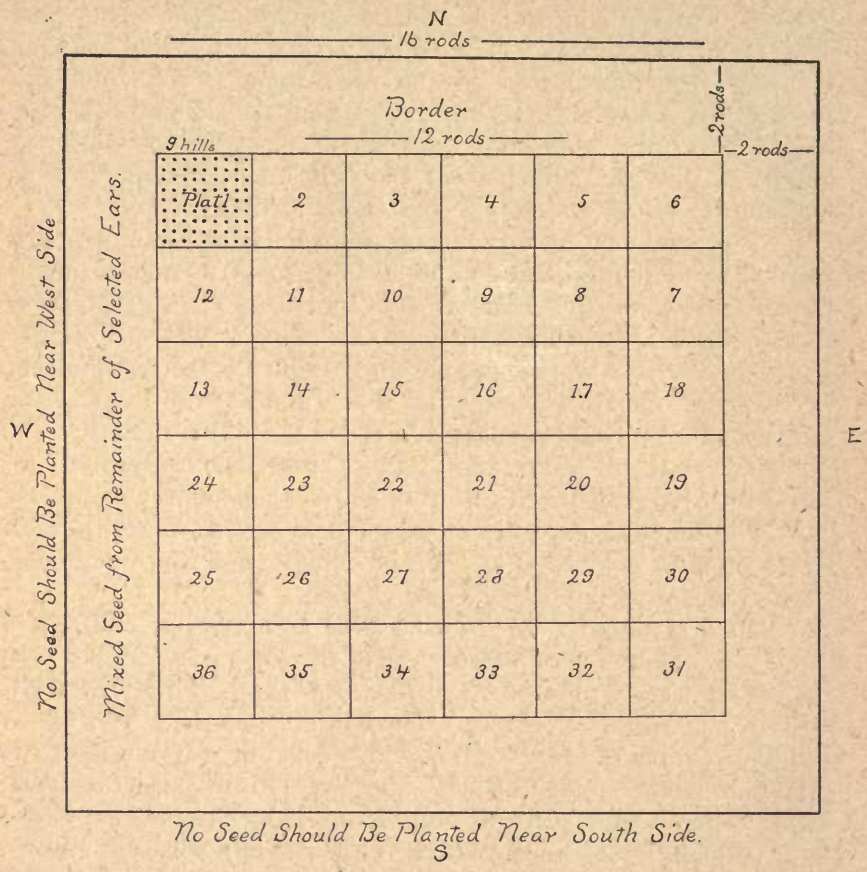
grained corn, but by constant selection toward deeper kernels and deeper dent, the variety has developed a very deep kernel with an unusually deep indentation. It has been found at the University through five years of experimentation, that the amount of husks, length of shank, size of stalk, position of the ear on the stalk, the number of leaves, in fact every physicial characteristic can be varied by simple selection in a short space of time.

At present our meager records show only the incomplete history of the parentage of the varieties of corn. It is just as important that we know the character of every part of the corn plant, as that we know every characteristic of the animal. The size, shape, and characteristics of the stalk strongly influence the development of the ear; and it is probable also that we shall need to know the nature of the root development in order to breed intelligently.

How to Grow Seed Corn. The farmer who is especially interested in corn can well afford to grow his own stock seed. He can select for those qualities he particularly desires, adapt the corn to his peculiar conditions of soil and climate, and continue to produce a constantly improving grade of corn.

The first essential in growing seed corn is, that one obtain from some reliable corn breeder thirty to forty ears of highly bred seed of the variety desired. Corn suitable for growing seed is difficult to obtain. It does not exist in large quantities, because of the high standard of perfection which must be maintained in its selection, and so it must be very expensive, but the farmer can well afford to pay a high price in order to get it for breeding purposes. It is absolutely necessary that the farmer obtain this seed corn in the ear, because it is impossible to judge accurately the quality of seed corn after it is shelled.

An acre or more of good land should be selected which is located at a distance of about forty rods from any other corn field (unless thick groves or hedges are between) and, if possible, further, especially in the direction of the most prevalent summer winds, in order that the corn may not be mixed by the pollen from other varieties or from low grade corn of the same variety. After the seed bed is well prepared and the field marked both ways plant the corn from each ear by itself, either in plots about nine or ten hills square or in rows running lengthwise of the field. The planting is best done by hand, and must be so done if the plot system is adopted. A square field of thirty-six square plots of one hundred hills each is a little more than one acre; or 28 rows of 127 hills each make practically an exact acre if the hills are three feet six inches apart each way. Discard all tips and butts and any other



abnormal or mixed kernels and plant each plot or each row with corn from a single ear. What is left of the ears may be mixed together and used to plant a border around the acre field to further protect it from foreign pollen. This border is of course cultivated with the rest of the field. Keep each year a carefully selected typical ear for purposes of comparison and to show changes effected year by year.

As soon as the ears begin to set and the character of the stalks can be determined, go through the field and cut out all of the poor, dwarfed, or barren stalks, and also any volunteer or accidental stalks which may appear in the field, so that the pollen from these inferior stalks cannot fertilize the future seed. The same object may be accomplished by detasseling these imperfect stalks just as the tassels begin to peep through the leaves.

Husk each plot or row grown from a single ear separately.

Examine the ears closely and select ears for the next year's seed acre from those plots or rows having the greatest proportion of ears true to type. The ears which produce this large proportion of ears true to type must have a prepotency for the production of ears of this uniform type, and by planting ears from such a crop, which has inherited this prepotency, and by following this method of selection for a series of years, a rapid improvement will take place.

After the required number of the very best ears has been taken as described for the next year's seed acre, a considerable quantity of highly bred seed can be selected for common planting or for planting in a separate field to produce larger quantities of stock seed. This stock seed being but one or two generations removed from the highest type of seed will naturally retain qualities and and preserve characteristics of the highly bred corn.

The two systems of planting, which may be termed the "plot system" and the "row system" are both used and both will doubtless give good results. It is thought that the plot system may effect a closer in-breeding, but whether this is true, or whether, if it be true, it is desirable or advantageous is not yet determined. For simplicity the row system is recommended. It has been used for several years at this Experiment Station in the above mentioned corn breeding experiments by which marked improvement has been effected in the chemical composition of corn, and it has been adopted by several breeders who are taking up similar lines of corn breeding.

The Physical Characteristics of Corn.

It was early found in studying samples of corn that the different varieties possessed peculiar characteristics which run uniformly through the different samples of each variety. In other words certain characteristics of color, shape of kernel, shape and size of ear, etc., have been fixed by the breeder during a long series of years. It was found that certain varieties possessed characteristics that other varieties did not have. From an examination of the different varieties a list of the various characteristics of corn, as shape of ear, cob, and kernel, nature of indentation, color of grain and cob, character of tip and butt, number of rows of kernels on ear, length and circumference of ear, etc., has been made as a basis in the study of varieties. This list is here presented with the thought that it may aid breeders to study their varieties of corn in a more systematic manner. The terms given are defined so that the farmer can take one ear at a time, run through the list of

characteristics marking the ones which apply to the ear and making the necessary measurements, and in this way taking up every point in the study of corn in detail.

EAR.—Cylindrical. (Uniform in circumference from butt to tip.)

Partly cylindrical. (Uniform in circumference for a portion of length.)

Slowly tapering. (Taper slight, regular.)

Distinctly tapering. (Taper very apparent.)

Very tapering. (Extremely tapering.)

Too short for circumference; too long for circumference. (Proper proportion of circumference to length is as 3 to 4, or for medium varieties 7½ inches to 10 inches.)

Rows in distinct pairs. (Alternate spaces between rows of kernels wider than the others.)

Number of rows. (Counted three inches from butt.)

Rows lost. (Disappearing after extending 3 inches or more from butt).

Narrow space between rows. (Rows pressed closely together.)

Medium space between rows. (Distinct furrows.)

Wide space between rows. (Wide furrows.)

Circumference of ear at butt; circumference of ear at tip. (Measured two inches from the ends.)

Length of ear. (Measured from butt to tip.)

Rows straight. (Parallel with cob.)

Rows turned to right; rows turned to left. (Rows angle to right or left of a straight line from butt to tip.)

BUTT.—Even. (Entire end of cob exposed, with butt kernels at right angles to axis of cob.)

Shallow rounded. (Cavity at butt shallow, broad.)

Moderately rounded. (Cavity moderately deep, medium diameter.)

Deeply rounded. (Cavity at butt deep, small diameter.)

Compressed. (Cob rounded at end.)

Enlarged. (Large butt with no extra rows or kernels.)

Expanded. (Large butt caused by extra rows or kernels.)

Open. (Greater space between rows at butt.)

Depressed. (Kernels at butt flat, smooth and short, indicating a tight husk.)

Kernels diverging. (Space between summits of kernels in same row.)

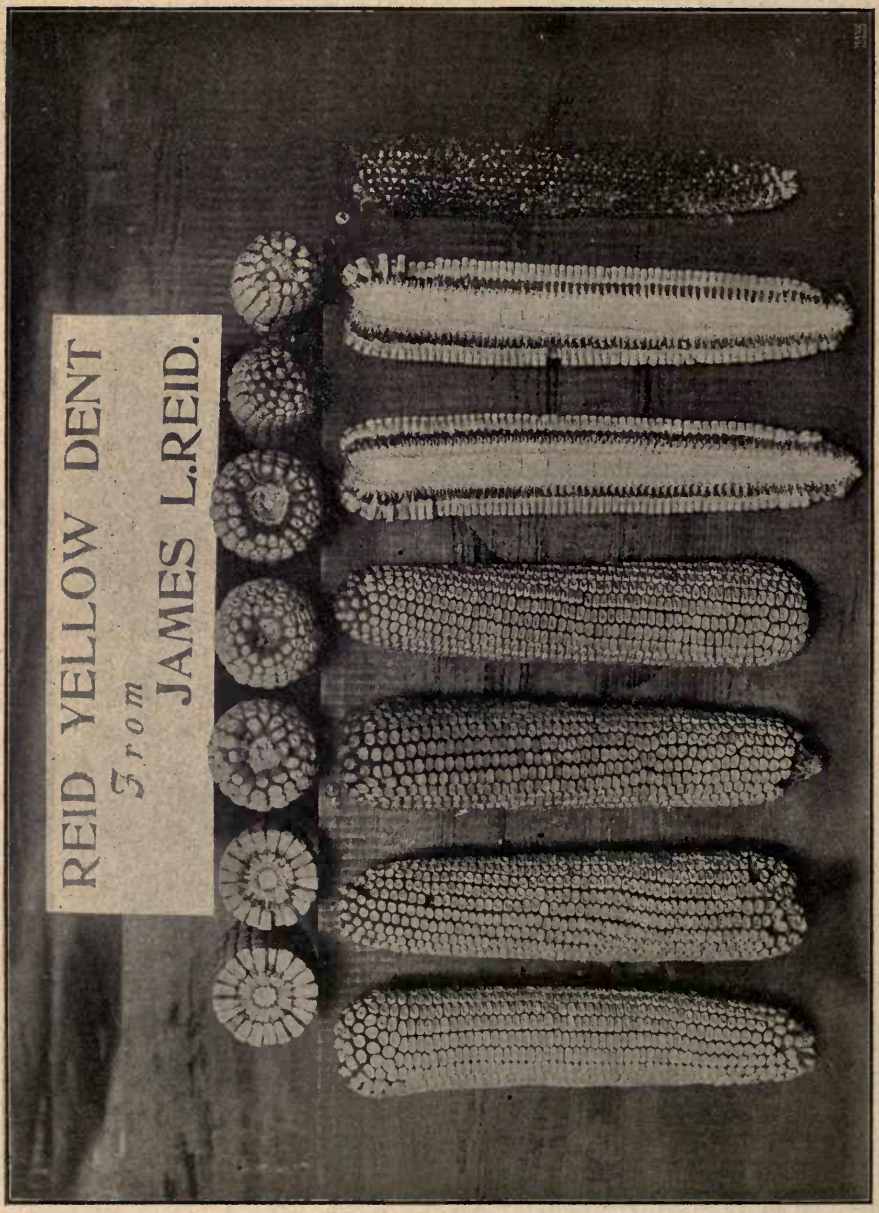
TIP.—Kernels in rows. (Rows may be traced to tip.)

Flat. (Cob flattened at tip.)

Filled. (Entire end of cob covered with kernels.)
Capped. (A central kernel projecting from filled tip.)
KERNEL.—Firm. (Rigid on cob.)
Loose. (Movable on cob.)
Roof-shaped at one edge. (Convex at one edge and flat at the other.)
Upright. (At right angles with surface of cob.)
Sloping. (Leaning towards tip.)
Overlapping at summit. (As shingles on a roof.)
Straight wedge-shaped. (Edges of kernels straight, tapering.)
Rounded wedge-shaped. (Edges rounded lengthwise, tapering.)
Square at top. (Corners not rounded at summit.)
Shoe-peg form. (Long narrow kernel holding size to tip.)
Rounded corners. (Corners rounded at summit and base.)
Rectangular. (Short and broad, as broad at base as at summit.)
Beaked. (With long, sharp, tapering projection.)
Slightly rounded at edges. (Rounded lengthwise of kernel.)
Small sharp point at summit. (Pointed projection from chit side of kernel.)
Round smooth dented. (Round smooth depression at summit of kernel.)
Long smooth dented. (Long smooth depression.)
Crease-dented. (Edges of kernels pressed toward each other, leaving small space between, and edges parallel.)
Pinched dented. (Edges of kernels pinched closely together.)
Rough projection dented. (With any rough ragged or beaked projection from summit of kernel.)
Bridge-dented. (Crease-dented with fold across center.)
Crumple-dented. (Seed coat wrinkled, as in sweet corn.)
Breadth; depth; thickness. (Exact measure.)
Color. (Note shade.)
SHANK.—Large. (Nearly the diameter of cob.)
Medium. (Half the diameter of cob.)
Small. (One-third the diameter of cob or less.)
COB.—Large. (Larger than 4½ inches in circumference.)
Medium. (From 3½ to 4½ inches in circumference.)
Small. (Not more than 3½ inches in circumference.)
Color. (Note shade.)

SOME VARIETIES ADAPTED TO ILLINOIS CONDITIONS.

There are at present a few distinct varieties of corn, with widely different characteristics, that have been developed by care



CHARACTERISTICS.

1. Ear, slowly tapering. 2. Circumference, 6.9 inches, length 9.5 inches. 3. Kernels, very firm on cob and upright. 4. Number of rows, 18 to 24. 5, Space between rows, very narrow. 6. Kernels, in distinct pairs of rows. 7. Butt.

deeply rounded, very compressed with kernels diverging. 8. Kernels, light yellow, square at top tapering to a point by straight lines with long smooth to pinched indentation. 9. Shank, small. 10. Cob, medium, red.

ful selection, during a quarter to a half century. From the fact that we have had no standard of perfection for these varieties, indeed, have not known their history or peculiar characteristics, improvement has been very slow and has been along the line of increased yield and adaptation to peculiarities of soil and climate.

There are several well known varieties, which have been grown in Illinois for many years, and have become acclimated to our conditions. It is proposed to give photographs of representative samples of these varieties in order that the farmer may select that type which best suits him. Together with these photographs are given the histories of the different varieties as far back as they can be secured from the breeders. Further information as to the characteristics of these varieties can be gained by an examination of the results of a systematic study of the different varieties, under the head of "Characteristics."

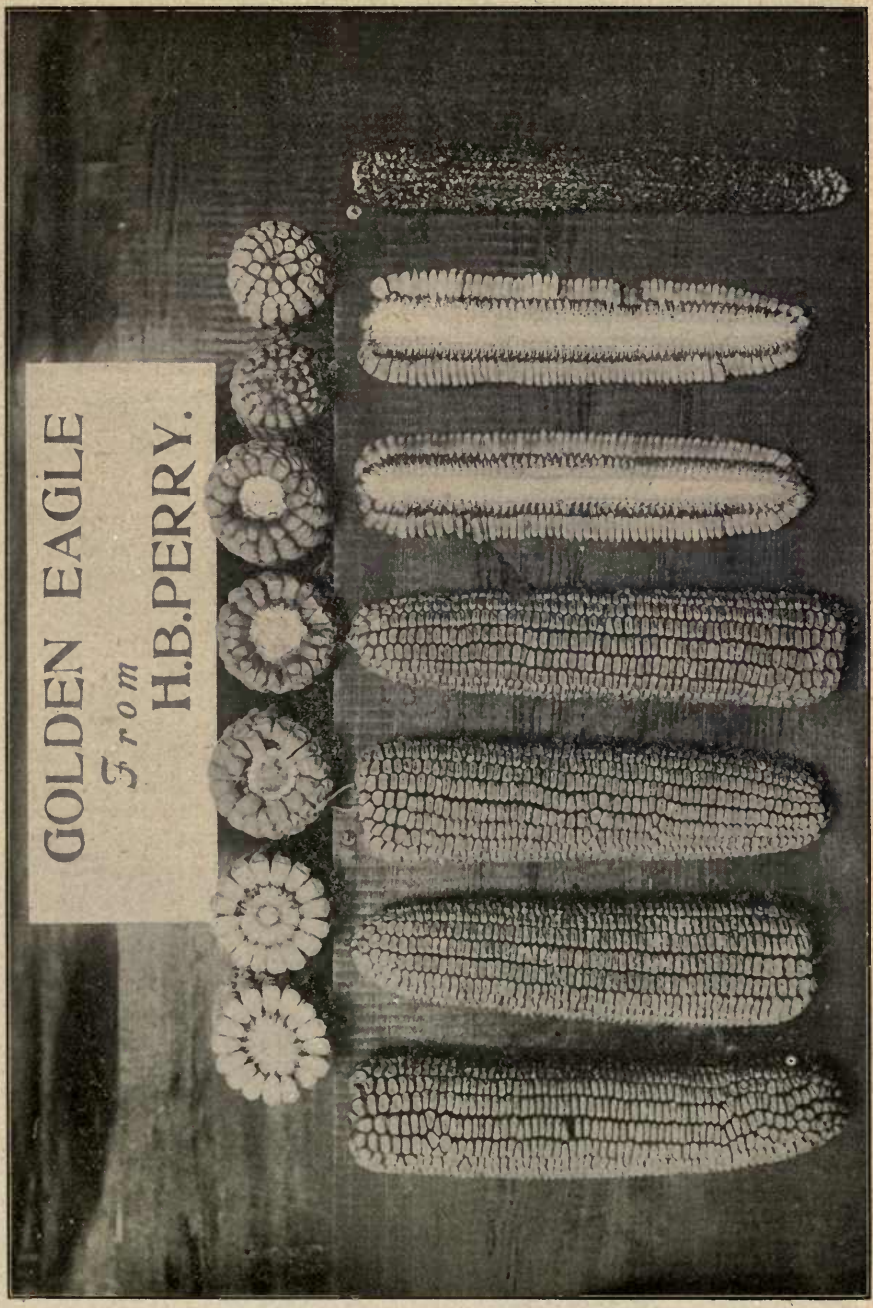
REID'S YELLOW DENT.

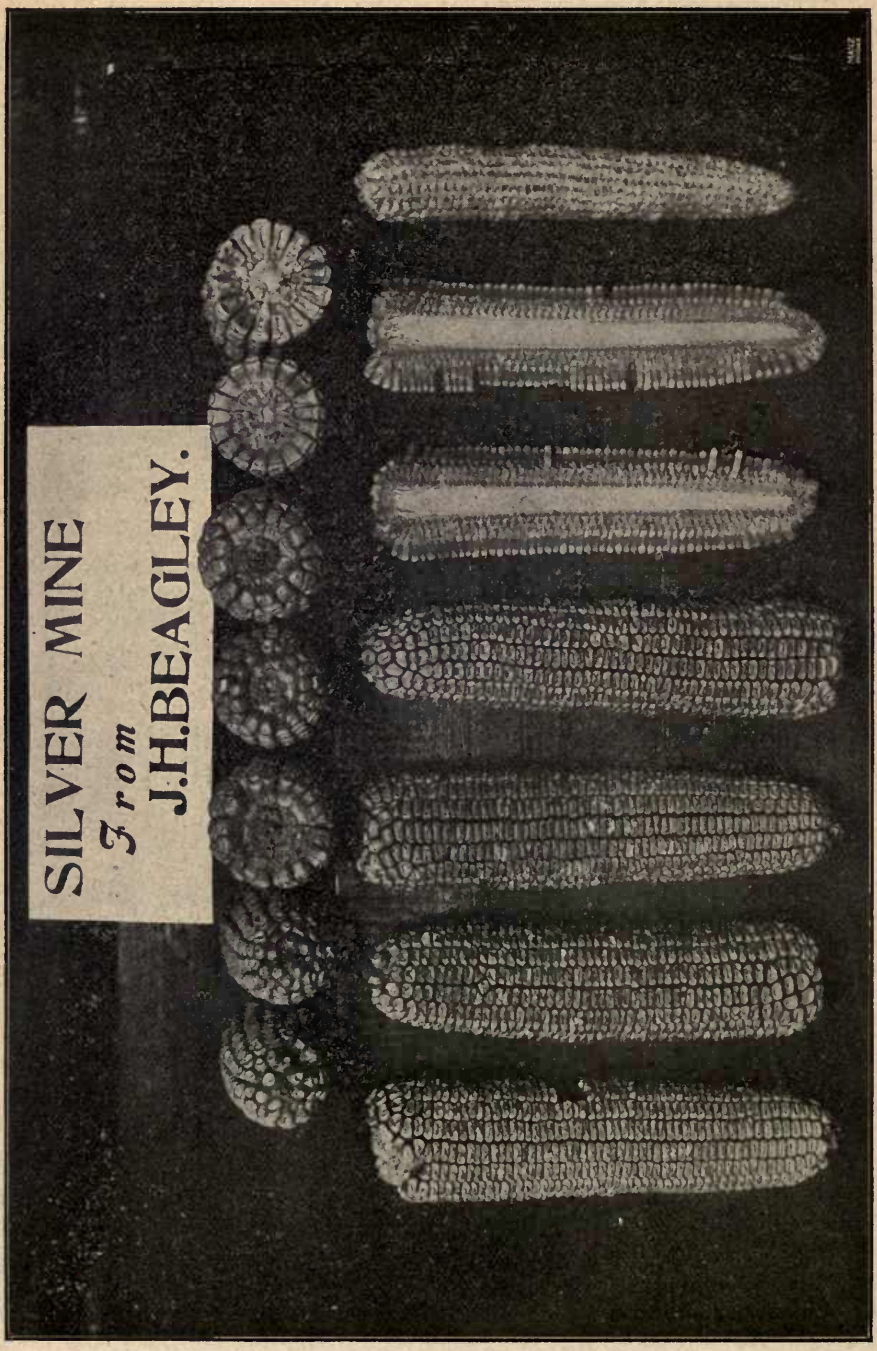
HISTORY.

The following is the history of Reid's yellow dent as given by the originator and breeder, Mr. James L. Reid, of Delavan, Illinois.

In 1846 Robert Reid brought from Brown County, Ohio, to Illinois a variety of corn called at that time the "Gordon Hopkins' corn." This was reddish colored, grown widely in the vicinity of the Red Oak settlement, the home of Mr. Robert Reid. The corn was planted near Delavan, Illinois, by Robert Reid late in the spring of 1846 and a fair yield of immature corn was harvested. Seed was selected from this crop for the next year's planting, but on account of the immaturity of the seed a poor stand was the result. The field was replanted with seed of the "Little Yellow Corn," the missing hills being planted with a hoe. The corn has not been purposely mixed by Mr. Reid since 1847, and has been improved by selection since that date.

It is adapted to central and northern sections of Illinois. This variety is of medium early maturity. The characteristics are very constant in all samples due to the fact that they have been strongly impressed by fifty years' selection. The photographs of the samples of Reids yellow dent, one from the originator Mr. J. L. Reid, the other from Mr. A. C. Rhoades, illustrate the uniformity of the characteristics running through the Reid variety. Mr. Rhoades secured seed from Mr. Reid about five years ago, and has grown this variety without intentional crossing since that time. In the samples of Mr. Rhoades' corn sent to the Experiment Station for examination, the indentation and shape of kernel, shape of ear, filling out at tips and butts, length and circumference, size and shape of cob, are uniformly and strongly Reid characteristics. This condition shows very decidedly that the characteristics that have been impressed on this variety of corn, are strongly fixed and are uniformly reproduced. It offers one of the best illustrations of the effect of intelligent selection. The original corn with small ears, poorly filled out and small number of rows being changed by selection to one of the most improved varieties grown.


GOLDEN EAGLE
From
H.B.PERRY.


SILVER MINE
From
J.H.BEAGLEY.

GOLDEN EAGLE.

HISTORY.

The golden eagle variety was originated by Mr. H. B. Perry, of Toulon, Illinois, in 1871. Mr. Perry selected seed from the so-called "Mason County Yellow" corn. This corn had rather small ears, red cobs, and small kernels, of a bright yellow color. The selection since that time has been towards a large proportion of corn to cob. This variety has been bred by Mr. Perry on his farm without mixture since 1871 and has developed certain prominent characteristics, particularly deep grain and well filled ends.

The golden eagle is of medium maturity, usually maturing in from 110 to 115 days; adapted to the central and the south half of the northern division of Illinois. The characteristics are very uniform in samples grown under different conditions, a result of 29 years of continuous breeding without crossing. The variety at present shows a great improvement over the original type and is one of the best examples of the results of selection.

CHARACTERISTICS.

1. Ear, slowly tapering. 2. Circumference, 7 inches, length 8.9 inches. 3. Kernels, loose on cob and upright. 4. Number of rows, 16 to 20. 5. Space between rows, medium to wide. 6. Kernels, deep. 7. Butt, moderately rounded, compressed. 8. Kernels, deep yellow, very marked, rough projection at summit, straight edges, and rough projection dented. 9. Shank, small. 10. Cob, small, red.

IOWA SILVER MINE.

HISTORY.

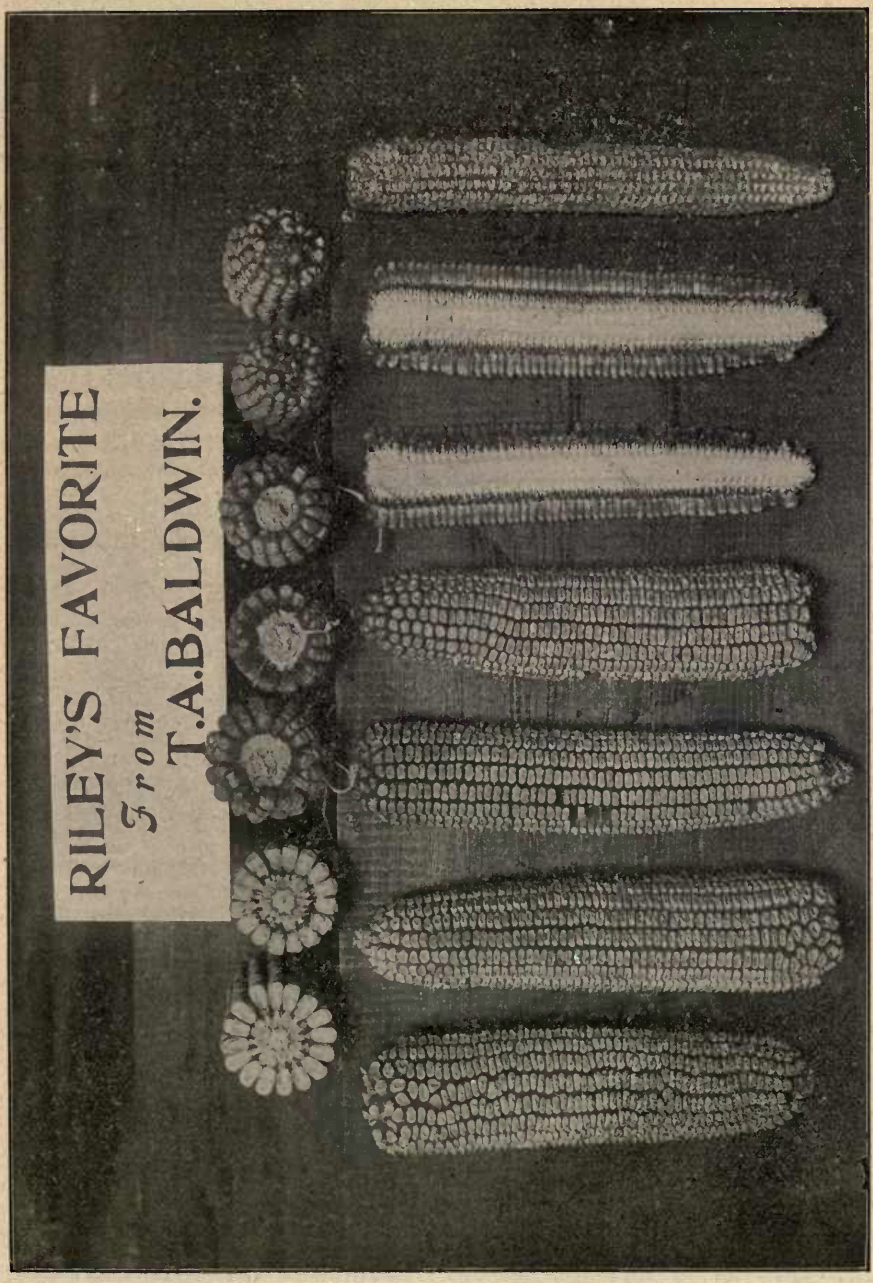
The Iowa silver mine variety of corn was originated by Mr. J. H. Beagley, of Sibley, Illinois, from seed selected from a prize winning exhibit of white corn at the Ford County Farmers' Institute in 1890. After sufficient corn had been grown to plant a twenty acre field, the crop was sold to the Iowa Seed Company which named it Iowa silver mine and sold large quantities of seed to Illinois farmers. The originator has selected towards a creamy white color, cylindrical shape tapering slightly at tip with an average of about 18 rows of kernels. This variety has been developed by selection, no crossing or mixing of varieties having occurred. The variety characteristics are strong, especially in those strains grown in the northern division of the state.

The variety is from medium to early maturing, adapted to the north half of the central and the northern section of the state.

CHARACTERISTICS.

1. Ears, partly cylindrical and partly slowly tapering. 2. Circumference, 7.2 inches, length 8.7 inches. 3. Kernels, firm on cob and upright. 4. Number of rows, 16 to 20. 5. Space between rows, medium. 6. Kernels, in distinct pairs of rows developing distinct rows at tips. 7. Butt, moderately rounded, compressed. 8. Kernels, cream white, deep, even at summit except for rough projection, straight edges, tapering, rough projection dented. 9. Shank, medium. 10. Cob, small, white.


RILEY'S FAVORITE
From
JAMES RILEY.


RILEY'S FAVORITE
From
T.A.BALDWIN.

RILEY'S FAVORITE.

HISTORY.

The Riley's favorite variety was originated by Mr. James Riley, of Thorntown, Indiana, in 1885. It is a hybrid, the result of a cross of a large late corn, the golden yellow, with a small early corn, the pride of the north. It has been bred in the following manner: A plot of one-half acre was selected away from any other variety of corn and planted in the usual way. As soon as the tassels began to appear, the barren and diseased stalks were all removed, leaving only healthy stalks. In this way future seed could not be fertilized by pollen from barren or dwarfed stalks. Mr. Riley selected towards a medium sized ear, small cob, well filled tips and butts, and stalk of medium height.*

The Riley's favorite variety is of early maturity, adapted to the central and northern divisions of Illinois.

This variety strongly illustrates the fact that improvement takes place in corn breeding through selection without crossing. Our varieties are sufficiently variable without introducing unknown characteristics, and selection will tend to develop these variations along the lines desired by the corn breeder.

CHARACTERISTICS.

1. Ear, slowing tapering. 2. Circumference, 7.1 inches, length 9 inches. 3. Kernels loose on cob and upright. 4. Number of rows, 16 to 20. 5. Space between rows, wide. 6. Kernels in distinct pairs of rows, about half of the ears having distinct rows at tips. 7. Butt, moderately rounded, compressed. 8. Kernels, yellow, straight wedge-shape, pinched to rough projection dented, with a tendency in the rough summits to be beaked. 9. Shank, medium to small. 10. Cob, small, red.

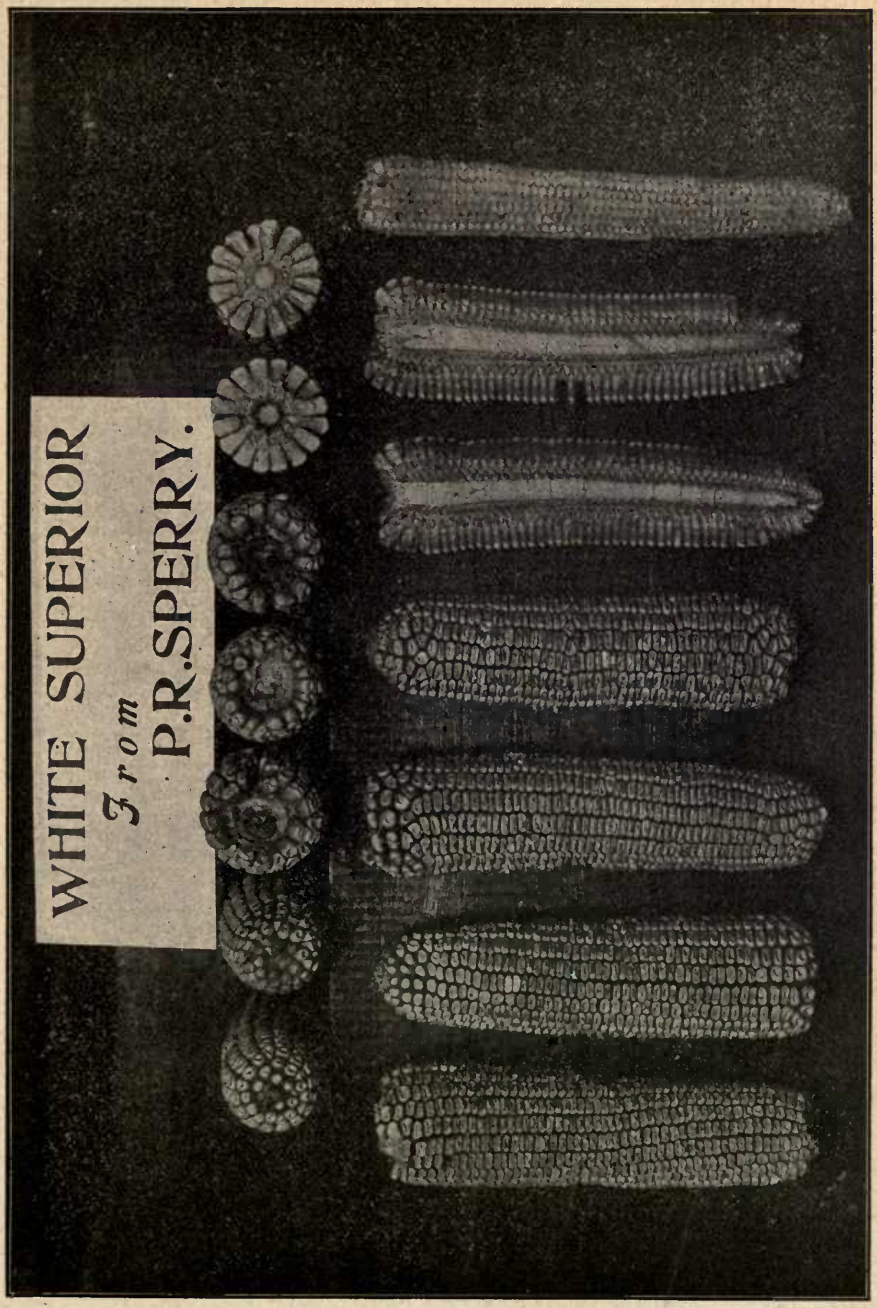
WHITE SUPERIOR.

HISTORY.

The history of the white superior variety as nearly as can be learned from the account of Mr. P. R. Sperry, of Eleanor, Illinois, a breeder of this corn, is as follows:

Mr. Shaffer, a seed corn specialist, introduced from Pennsylvania to Warren County, Illinois, a variety of corn he called the white elephant, about 1880. In 1895 Mr. Sperry began selecting seed from this variety for a different type than the white elephant. He selected one bushel of seed of the type desired and planted this seed by itself, so that it would not be mixed with any other variety. In changing the type of corn Mr. Sperry changed the name to the white superior.

*As a matter of fact neither Mr. Riley nor other growers of Riley's favorite have been able to fix the above characteristics of this variety. One season would develop a certain set of characteristics, while a different season would bring out different characteristics. This condition is a result of the cross made in the beginning of selection, in this way mingling together widely differing characteristics. In order to fix any characteristic, it takes years of selection for this point, and the Riley's favorite has not been selected long enough to give the variety any fixed type. In the illustration of the samples of Riley's favorite, one from Mr. James Riley and the other from Mr. T. A. Baldwin, little uniformity of characteristics of ear can be found. In a careful examination of these samples, it was clearly demonstrated that little similarity of characteristics existed between the two samples, although Mr. Baldwin secured the seed of this variety directly from Mr. James Riley only a few years ago. In a shipment from Mr. Riley of about 25 bushels of Riley's favorite seed in the ear, a large number of ears resembling the pride of the north variety, and about an equal number of ears similar to the yellow mastodon variety, were found. A small proportion of ears of the Riley's favorite type could be picked out by careful selection.


WHITE SUPERIOR
From
P.R.SPERRY.

His selection was as follows: Kernels one-half inch in length and one-fourth inch in width; ears eleven inches long, seven and one-half inches in circumference with little space between rows. The white superior is of medium maturity, and is adapted to the central and north central sections of the state.

CHARACTERISTICS.

1. Ear, slowly tapering. 2. Circumference 7 inches, length 8.4 inches. 3. Kernels firm on cob and upright. 4. Number of rows, 18 to 20. 5. Space between rows, medium. 6. Kernels in distinct rows. 7. Butt, shallow, rounded depressed, slightly compressed. 8. Kernels white, tapering with slightly curved edges and rough projection dented. 9. Shank, medium to large. 10. Cob, medium, white.

LEAMING.

HISTORY.

The Leaming variety was originated by Mr. J. S. Leaming, of Wilmington, Ohio, in 1826. Mr. Leaming began selecting seed at this time from the ordinary yellow corn grown on the "Little Miami Bottoms," Hamilton County, Ohio. He selected this corn toward a standard type in his mind for 56 years, to be followed by his son, J. S. Leaming, Jr. His method of selection was to go through a field as soon as the earliest husks began to show signs of ripening, selecting ears from stalks tapering from butt to tassel, ears well filled over points, straight rows of kernels, and ripening in from 90 to 100 days.

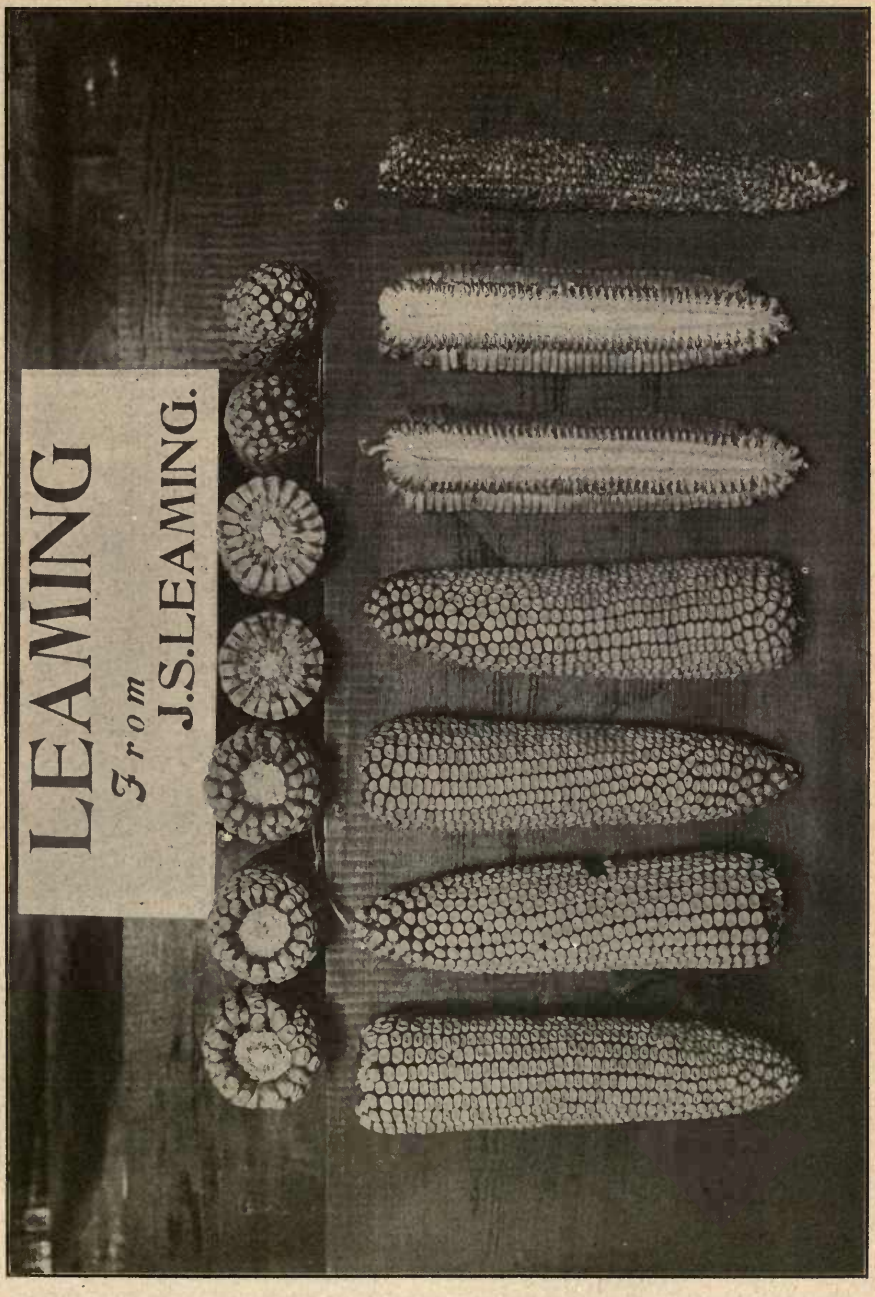
The Leaming strain as grown by Mr. E. E. Chester, of Champaign, Illinois, is from seed secured from Mr. J. S. Leaming in 1885. Mr. Chester has selected corn for seed from those ears showing the first ripening of the husk so as to secure corn maturing in from 100 to 120 days. No crossing has been allowed, the corn being planted in large isolated fields.

Mr. James Riley, of Thorntown, Indiana, secured seed of the Leaming variety from Mr. Chester. Mr. Riley selected for a thick, strong stalk, ears close to the ground, medium cob, deep grain, and bright yellow kernels.

Mr. J. H. Coolidge, Galesburg, Illinois, secured Leaming seed from Mr. Chester. Mr. Coolidge has selected for a deep grain, long ear, well filled tip and butt, uniform rows of kernels and early maturity.

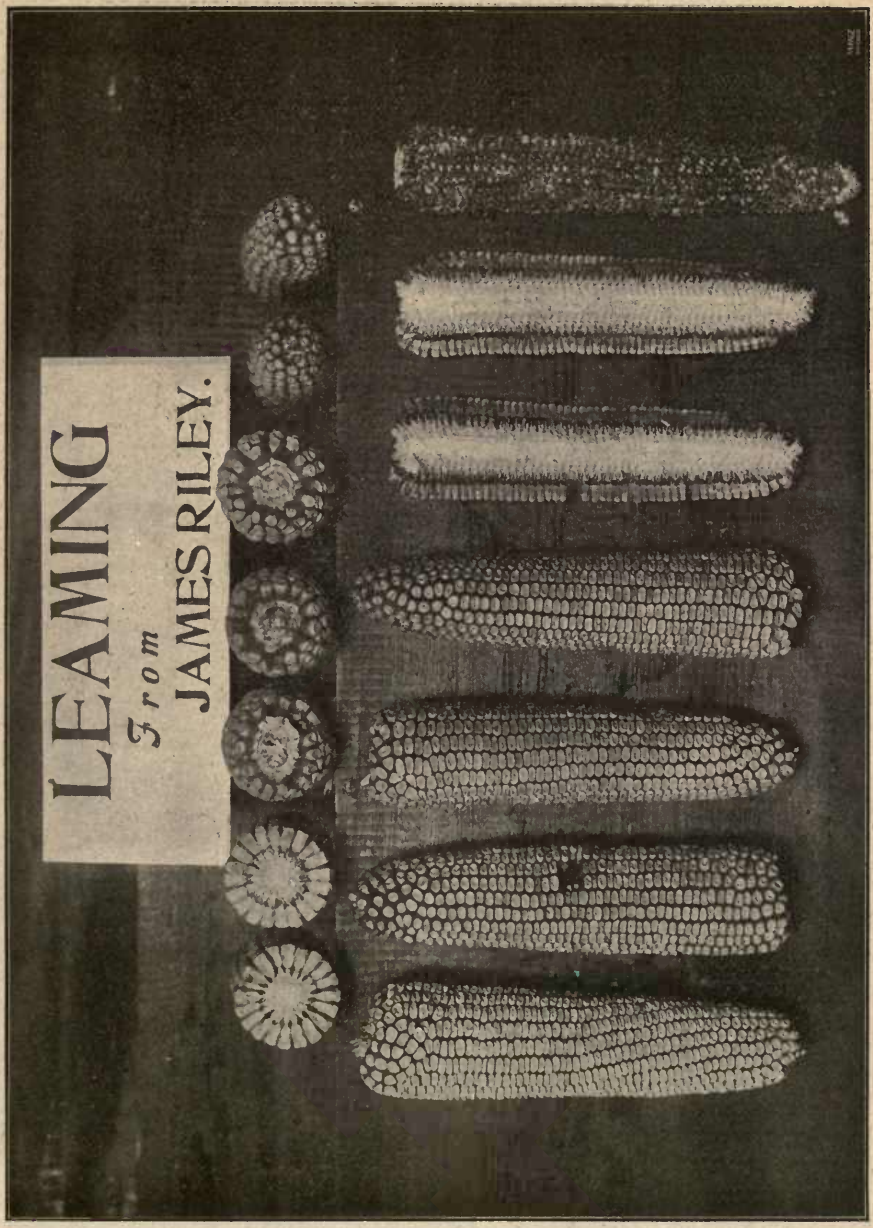
The Leaming variety has the most uniform characteristics of any variety of yellow corn grown. Its adaptation to widely different conditions of soil and climate by selection has done much to strengthen these characteristics. It is no doubt the variety from which many varieties of yellow corn have been developed, as most of the yellow varieties show some of the characteristics of the Leaming corn; and when their history is traced back they are usually found to have been developed from the Leaming seed.

The Leaming variety is of medium maturity adapted to the central division of Illinois. The three-quarters of a century of breeding has fixed the following characteristics in this variety, and they can be found strongly developed in strains bred by different corn breeders, modified by the breeder in his selection of seed.


LEAMING
From
J.S.LEAMING.

CHARACTERISTICS.

Ears, tapering. 2. Circumference 7 inches, length 9.3 inches. 3. Kernels firm on cob and mostly upright. 4. Number of rows, 16 to 24, with tendency to drop rows about the middle of ear. 5. Space between rows, medium. 6.



Kernels in distinct pairs of rows, mixed at tip. 7. Butt, moderately rounded, slightly compressed, with tendency to expand. 8. Kernels yellow, wedge-shape, with square cut summits and nearly straight edges, long dimpled to pinched dented. 9. Shank, medium to large. 10. Cob, medium, red.

CHARACTERISTICS.

1. Ear, slowly tapering. 2. Circumference 7.5 inches, length, 9.3 inches. 3. Kernels firm on cob and upright. 4. Number of rows, 16 to 22. 5. Space between rows, medium to wide. 6. Kernels in distinct pairs of rows, developing distinct rows at tip. 7. Butt, moderately rounded, slightly compressed, enlarged or expanded. 8. Kernels white, broad, even at summit with slightly curved edges and creased to rough projection indentation. 9. Shank, medium. 10. Cob, medium to large, white.


BOONE COUNTY WHITE
From
O.C.BLACK.

BOONE COUNTY WHITE.

HISTORY.

The Boone County white* corn was originated by Mr. James Riley, of Thorntown, Boone County, Indiana. Mr. Riley began selection from a large coarse variety of corn grown in Boone County, commonly known as the white mastodon, in 1876. This white mastodon seed secured by Mr. Riley was planted in a separate field from other varieties and has never been crossed, being changed in type by simple selection. Mr. Riley attempted to remove the barren stalks by cutting out such stalks before they produced pollen. After several years of selection he gave his new type of corn a new name, "Boone County white."†

Seed of the Boone County white variety was early secured by Mr. O. C. Black, of Champaign County, Ill., and by careful selection for about ten years, the characteristics of shape of ear, kernel and cob, and the indentation of the kernel have been changed. The proportion of circumference to length has been increased by Mr. Black. The indentation of kernel in the Black type is deeper than the Riley type, but the shape of kernel has not been greatly changed. No doubt that by continued selection along the lines already laid down by Mr. Black and other growers of the Boone County white variety a distinct type can be produced.

The Boone County white variety is of medium to late maturity adapted to central and southern sections of Illinois. It has been bred for large ears, and consequently matures slowly. There is a tendency to the production of a poorly filled tip on account of the length of ear, which must be overcome by careful selection.

As a result of the general desire among the farmers of Illinois for a reliable source of seed corn, an organization of seed corn breeders was formed during a convention of corn growers at the University of Illinois in June, 1900, for the purpose of providing good seed to the farmers direct from the breeders.

At a recent meeting of the Illinois Seed Corn Breeders' Association, a corn register was begun, so that in a few years pedigrees can be furnished as in the case of live stock associations.

The following abstracts from the constitution and by-laws of this association are given here in order that the Illinois farmer can see the objects of this organization and the rules under which the members produce and sell seed corn.

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*The so-called white prolific variety has doubtless come from the same source as the Boone County white, having been bred by Mr. W. S. Dungan, of Franklin, Johnson County, Indiana, and later by by Mr. H. F. McMahan, of Fairfield, Indiana.

†During recent years a large number of corn growers have begun to breed the Boone County white variety, and at present it is grown very extensively over the central and southern sections of Illinois. During this wide distribution this corn, grown under different conditions of soil and climate, has retained the characteristics imparted to it by the long course of selection by the originator. Its adaptation to extreme conditions of soil and climate amply proves the fact that our varieties of corn have sufficient power of variation within themselves to permit of almost any change or improvement, without crossing or the intermingling of varieties.

CONSTITUTION.

ARTICLE 1.

NAME AND OBJECT.

SECTION 1. The name of this organization shall be "Illinois Seed Corn Breeders' Association."

SEC. 2. The object of this association shall be:

First: To establish distinct types and breeds of corn.

Second: To encourage and promote the growing of pure bred corn for seed purposes throughout the State of Illinois.

Third: To establish a bureau of inspection of the product grown by corn breeders, and furnish certificates of type and breed to the grower.

Fourth: To protect the farmer who shall desire to purchase pure bred seed corn by furnishing information such as will instruct him in distinguishing the breeds of corn and giving him the names of reliable growers.

Fifth: To aid in procuring such legislation or in doing any other acts as shall protect the growers of pure bred seed corn in their efforts to furnish the farmer with seed corn of the breed desired.

Sixth: To establish a score card for each recognized standard variety of corn.

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ARTICLE 7.

RULES AND REGULATIONS.

RULE 1. No member of this association shall sell or offer for sale any corn for seed purposes except in the ear only, unless otherwise ordered by the purchaser.

RULE 2. No member of this association shall sell or offer for sale any corn for seed purposes other than is grown by himself or under his direction and for seed purposes, and the type, variety and quantity must be reported to the secretary of the association not later than second Wednesday in December of each year.

RULE 3. Each member of this association shall conduct his business of corn breeding and selling of pure bred seed corn in such manner only as shall be for the elevation of the reputation of the association as a means of accomplishing the object for which it was organized.

RULE 4. Each member shall properly test the vitality of the seed corn he offers for sale and if less than 90 per cent. germinates he shall not offer it for sale.

The present officers of the Illinois Seed Corn Breeders' Association are:

President,
J. H. COOLIDGE,
Galesburg.

Vice President,
E. E. CHESTER,
Champaign.

Secretary and Treasurer,
F. A. WARNER,
Sibley.


Silver Mine
Leaming
41°
Boone Co. White
White Superior
Leaming
Reids Yellow Dent
Golden Eagle
39°
Boone Co. White
Yellow Mastodon
VARIETIES
OF CORN
ADAPTED TO
ILLINOIS
CONDITIONS