

PART II

County and State Corn Yield Tests

**The development of more useful
corn score cards;
the Seed Corn Specials of 1905;
world-wide influence
of the County Farm demonstrations**



7. The Clinton County, Iowa, Corn Yield Test

THE FIRST corn yield test in Iowa deliberately planned to find a superior strain of corn adapted to a county and to provide for its distribution was conducted in Clinton County, Iowa, during the years of 1913, 1914, and 1915. The project was successful.

A strain of Reid's Yellow Dent corn which had been grown for the 10 preceding years by A. H. and F. A. Studeman (father and son) was found to be superior and was distributed in 1915 and 1916. Within the next 10 years this corn came to be used by an estimated 75 to 80 percent of the farmers of Clinton County.

It happened in this way. Clinton County was the first county in Iowa organized for the employment of a county agricultural adviser. When I was appointed to that post on September 1, 1912, I immediately began a series of care-of-seed-corn demonstrations in the rural schools.

Ninety-five meetings, five per day in each of 19 townships, were held during September and early October. Four meetings in the corner schools of each township were held during the day, with a night meeting in a central school of the township. The night meetings were attended by adults, with a few children; the day meetings by school children, with a few adults. The meetings were attended by a total of 85 teachers, 1,169 children, and 1,926 adults.

At each night meeting, the care-of-seed-corn demonstration as given during the day meetings was repeated.

62 CLINTON COUNTY, IOWA, CORN YIELD TEST

This was followed by a discussion of what the county agricultural adviser planned to do. Three lines of work were outlined: increased crop production; increased animal production; and soil conservation.

During the discussion of the first topic the County Farm corn demonstrations, then in their tenth year, were explained. A plan for finding and distributing a superior strain of corn for Clinton County was suggested. Later that fall a corn improvement plan was developed by the Clinton Commercial Club, the local organization cooperating with the Iowa State College and the Bureau of Plant Industry, USDA, in the conduct of the County Extension project.

PLAN OF THE CLINTON COUNTY CORN YIELD TEST

The plan of the corn yield test was based on the following conclusions, reached after nine years of the County Farm demonstrations:

1. There are in every county a few men who are growing strains of corn superior to most seed used in that area.
2. Seed from a large number of men who have not been exhibiting seed corn, as well as those who have, must be field tested for yield, through several years if the few really superior strains are to be found.
3. Differences in yield due to differences in the germination of the seed must be eliminated insofar as possible.

THE PLAN IS PUT INTO ACTION

During the fall of 1912 an outline of the plan for the project was given wide distribution throughout the county.

Early in 1913 meetings were held in nearly every town in Clinton County, to which farmers were requested to

bring 70 ears of their seed corn. From the 153 samples brought in to the different meetings, 97 were selected for planting in a field test at the County Farm.

SELECTING FORTY OF THE SEVENTY EARS IN EACH SAMPLE FOR THE FIELD TEST

From each of the 97 samples of 70 ears the 60 "best" were selected and numbered from 1 to 60. From each of these ears three rows of kernels were shelled, after which the ear remnants were taken home by the owner. During March and April, six kernels from each ear-sample were tested. If any of the six failed to grow strong such ears were discarded. From the remaining, the 40 showing the "best" shapes and general appearance of kernels were then selected. The seed from these 40 ears was then thoroughly mixed and labeled with the name of the man who had furnished the seed.

This plan, as carried out in 1913, shows that I was still of the opinion that I *knew* which were the "60 best ears" and which "40 lots of kernels showed the best shape and general appearance." This error was corrected when planning the Woodford County test. (See Chapter 8, page 75.)

As soon as the 40 ears from each lot of seed had been selected, the owner was advised of the ear numbers, with the suggestion that he plant the remnants of these ears on one side of a field, and save seed from that part of the field the following fall. Reports received later showed that this was done in most cases.

MANNER OF CONDUCTING THE FIELD TESTS

The field tests were conducted in much the same way that the County Farm demonstrations had been conducted during the preceding 10 years and the same kind of records kept.

In the fall, as the corn was harvested, two representative ears were saved from each plot and marked with the

sample number. After all plots had been harvested, the ears from all plots of the same strain of corn were put together, a 10-ear sample selected, and the weight recorded. The 10-ear samples and their yield records were exhibited throughout the county and later, when well dried, each was weighed and shelled, and the shrinkage and proportion of shelled corn calculated.

The following items of information were recorded, as a basis for selecting the "best samples" for further testing in 1914 and 1915:

1. The yield of ear corn at harvest, at 75 pounds per bushel
2. The yield of dry shelled corn, at 56 pounds per bushel
3. The percent shrinkage from harvest until air dry
4. The percent of shelled to ear corn
5. The percent stand at harvest
6. The percent of barren stalks
7. The percent of seed ears
8. The percent of nubbins and worthless ears
9. The time of ripening

SOME OBSERVATIONS ON HIGH- AND LOW-YIELDING SAMPLES

The 20 high-yielding samples produced an average of 12 bushels per acre more dry shelled corn than the 20 low-yielding samples. The reader is reminded that differences in yield due to differences in stand had been almost eliminated by the use of only the ears having strong, mold-free germination.

Little or none of the 12-bushel difference in yield between the 20 high-yielding and the 20 low-yielding samples could be attributed to the four percent difference in stand. The highest yield, 83.5 bushels per acre, was

obtained from a medium to late sample of Reid's Yellow Dent. A sample of medium-maturing Reid's Yellow Dent yielded only 60.5 bushels per acre, 23 bushels less than the high-yielding sample of the same variety. Ironically enough, this low-yielding sample was from the man who had shown "the most perfect ear of corn ever exhibited," and which had been bought back at auction by the owner for \$150. This was the highest price ever paid for seed corn. A photograph of the ear has been published far and wide as an example of a perfect seed ear.¹

This prize-winning farmer was in the seed business and because of his reputation was allowed to enter samples of each of three strains which he grew commercially. It was a severe blow to him to learn that his three samples yielded from 10 to 20 bushels per acre less than samples contributed by others who were growing the same varieties. We did not publish his name with the record.

AVERAGE YIELD OF DIFFERENT VARIETIES

The average yield of different varieties contributed for the test is not important but may be of some interest.

	<u>Number of Samples</u>	<u>Yield, Dry Shelled</u>
Reid's Yellow Dent	43	72.7
Unnamed yellow	39	71.2
Leaming	9	68.9
White varieties	4	65.0
Calico varieties	<u>2</u>	<u>64.7</u>
Average of all varieties	97	71.2

YIELD OF DRY SHELLED CORN INCREASED WITH LATENESS OF MATURITY

The average yields of samples classified as to time of maturity follow:

¹See such a photograph in the book, *Corn*, by Bowman and Crossley, published in 1908.

66 CLINTON COUNTY, IOWA, CORN YIELD TEST

	<u>Number of Samples</u>	<u>Yield, Dry Shelled</u>
Early	5	65.1
Early to medium	9	68.7
Medium	41	71.2
Medium to late	12	72.2
Late	30	72.8

I believe that if the early, small-eared varieties had been planted thicker, perhaps four kernels per hill rather than three, some of them might have yielded as well or even better than the later varieties. However, in those days of hand husking, farmers preferred large rather than small ears, even though they did not mature as well.

Apparently some inherent quality that caused some seed to produce many nubbins reduced the yields of some samples. Fourteen samples having less than 6 percent nubbins by weight produced an average of 73.2 bushels per acre. Eighteen other samples that produced 11 percent or more nubbins averaged only 66.9 bushels of dry shelled corn. The 20 high-yielding samples had 6.7 percent nubbins while the 20 low-yielding samples, with slightly thinner stands, had 10.3 percent.

THE SECOND YEAR'S TEST

Fourteen of the higher-yielding samples from the 97 compared in 1913 were selected for a second year's test in 1914. Samples which showed more than the average yield of dry shelled corn were selected. From these, those showing more than average shrinkage were discarded. Then from the high-yielding, early-to-medium-maturing samples, 12 were selected which had more than the average proportion of "good ears" and more than the average proportion of shelled corn. Another sample was selected because of high yield, large proportion of shelled corn, and attractive appearance, although it was later than average. The fourteenth sample was included because of its very low proportion of nubbins, although it was rather late in maturing. Five other selections were made for further trial because of their early maturity. In selecting

these five, earliness of ripening was considered first and yield second.

Each man whose seed had been selected for the second year test was asked to furnish a peck of tested, shelled seed which he had selected from a field of the same seed as that furnished the first year. This is recognized to have been a mistake. The second-year samples should have been brought in the ear and ear-tested and prepared for planting in a uniform manner. Most, if not all, of the 19 samples were selected from the seed plots in which the 40 selected ears of the first year had been planted.

Each lot of seed was planted on six farms in 1914, representing three soil types: black loam, sandy loam, and yellow clay loam.

At harvest, as soon as the corn was in condition to crib, two samples were selected from each lot of corn on each of the six farms, from which the shrinkage and shelling percentages were calculated. The final acre yield was based on the weight of dry shelled corn.

Results of the Second Year's Test

Seven of the 19 samples planted on the six farms in 1914 were selected for further tests in 1915. In making the selections the yield of dry shelled corn and the shrinkage were considered first. Some attention was given to the uniformity with which the selected samples produced on the different farms. No consideration was given at any time to variety, type, color, or the men who furnished the seed.

Much emphasis was placed on maturity. The two samples that had the highest yield during the first two years were dropped because of late maturity. Two of the six early-maturing samples selected in 1913 proved to be relatively high yielding in 1914 and so were selected for further tests. One of them, the A. H. Studeman corn, was the one finally accepted by the farmers of Clinton County and this came into general use within a few years.

ANOTHER FIRST-YEAR TEST IN 1914

From eighty 30-ear samples exhibited in township corn shows, the "best" 43 were selected for trial in 1914 and were field tested in much the same way as the 97 samples had been in 1913.

Six of the samples which were in the test for the first time in 1914 were selected for the county-wide trials in 1915. Two of the samples planted in the 1914 tests and which were also in the 1913 tests but had not been chosen for retrial in 1914 were again selected for the final trials in 1915.

THE FIELD TESTS IN 1915

The six samples from the 1913-14 tests and the eight from the 1914 test were machine planted on 21 farms in 16 townships in 1915.

The owner of each farm on which the test was being made planted his own seed in plots of two rows across the field, alternating with two-row plots of each of the 14 lots of seed being tested.

Fourteen of the 21 fields lay along the public highway. Neat signs were placed at the ends of each pair of rows, giving the name of the man from whom the seed had been obtained and the statement that it was one of 14 strains of seed which had been selected from 140 which had been tested in 1913 or 1914.

The season of 1915 was wet and very cold in Clinton County. People were generally agreed that the crop raised was of the poorest quality ever produced in the county. This may have been fortunate for the purpose of the tests, as it helped to weed out some of the late-maturing strains.

During the winter of 1914-15 I obtained seed for the 1915 trials from those farmers whose seed had been selected after two years' tests. From 3 to 14 bushels of

seed were selected from that picked early in the fall and stored by the owner. The soundest ears of the type preferred by the owner were selected. My ideas of what was best were disregarded as much as possible, although this seed was all carefully ear tested, shelled, and graded under my supervision. One bushel of each man's seed was then reserved for the county-wide tests, with the rest of it furnished to 4-H Club boys or sold to farmers in the county.

Records of yield, shrinkage, and shelling percentage were obtained on 11 of the 21 farms. The corn was of such poor quality and down so badly on the other farms that no harvest records were obtained.

Table 7.1 gives the average of results, showing the yield and quality of the 14 samples of corn as grown on the 11 farms in 1915.

The C. H. Joehnk corn, which gave the highest yield, was of the Leaming variety and had been kept fairly pure in a small locality near Elvira for 30 or 40 years. This corn had been shown to be high yielding during a good corn year as well as during a poor corn year. It was rather sharp in indentation making it a little disagreeable to handle. It broke harder and had more nubbins than the Reid's corn. This was a splendid, high-yielding,

Table 7.1. Records of the Third Year Clinton County Test, 1915

Rank in Yield	Name	Variety	Yield, Dry Shelled	Percent Shrinkage	Percent Shelled	Percent Cribable
1	C. H. Joehnk	Leaming	48.5	27.0	82.0	69.0
2	Detlef Schnack	Unnamed yellow	46.0	29.0	81.5	67.5
3	C. W. Greve	Reid's yellow dent	45.5	28.5	81.5	69.5
4	A. H. Studeman	Reid's yellow dent	45.0	28.5	81.5	61.5
5	P. E. Eggers	Reid's yellow dent	45.0	31.0	81.0	63.0
6	J. N. Homrighausen	Unnamed yellow	43.5	30.5	79.5	62.5
7	H. J. Schneider	Unnamed yellow	43.0	35.0	80.0	47.5
8	Frank Coverdale	Reid's yellow dent	42.5	26.5	82.5	66.5
9	T. H. Dann and Son	Reid's yellow dent	41.5	36.5	82.0	48.5
10	Charles Smith	Unnamed yellow	41.0	37.5	78.5	47.5
11	Henry Cornish	Reid's yellow dent	40.5	36.5	80.5	53.0
12	John Olson	Reid's yellow dent	40.5	36.5	81.5	53.0
13	William Rice	Reid's yellow dent	39.5	34.0	79.5	58.0
14	J. C. Palmer	Reid's yellow dent	39.5	37.0	81.0	45.0
Average of 14 samples			43.0	32.5	81.0	58.0

70 CLINTON COUNTY, IOWA, CORN YIELD TEST

early-maturing type of corn and was well worth consideration by anyone who wanted an early type. This corn might have been selected for distribution if mechanical corn pickers had been in use.

The Detlef Schnack corn, which gave second highest yield was in the test for only two years.

The C. W. Greve corn, third in yield, was a very good, early-maturing type of Reid's Yellow Dent.

The A. H. Studeman corn, which produced only one-half bushel less per acre than the Greve corn, was of practically the same type. In fact, Mr. Studeman and Mr. Greve both had developed their seed from small samples distributed by *Wallaces Farmer* of Des Moines in 1903 or 1904. Figure 7.1 shows a sample of Studeman corn.

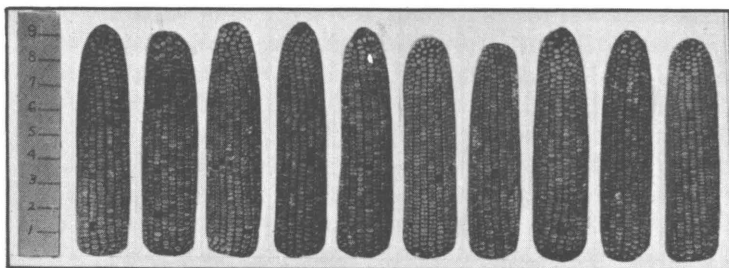


Fig. 7.1. Typical sample of the Studeman corn, which came to be grown by 75 to 80 percent of the Clinton County farmers during the 20 years before hybrid corn came into general use.

Considering the fact that seed from these two men had given such good results consistently during the three years that the Clinton County tests had been in progress, we did not hesitate to recommend this type of corn for general use in Clinton County.

The P. E. Eggers corn — which gave practically the same yield as the Schnack, Greve, and Studeman corns — was a few days later in maturing than those three.

THE STUDEMAN AND GREVE CORN,
WALLACES FARMER AND P. G. HOLDEN

There is an interesting story that involves the Reid's Yellow Dent seed distributed to boys by *Wallaces Farmer* in 1904.

In 1958 Professor Holden was recalling an incident that happened during the winter of 1903-04 when he was conducting a short course in corn judging for the Iowa Grain Dealers Association. As a result, this Association financed the purchase of a carload of Reid's Yellow Dent seed corn and authorized Professor Holden to go to Illinois and obtain the seed of a type that he thought best suited to Iowa conditions.

Professor Holden had remembered an especially productive-appearing strain of Reid's corn that had been exhibited a few years before by a boy from Taylorville at the first Illinois Short Course.

So he went immediately to Taylorville, looked up the boy, and purchased the seed from him and others who were growing the same strain.

When Professor Holden told the story in 1958 all he could remember was that the boy lived at Taylorville and that he had a German name something like Schram (but not Schram, he added) and that the type of corn was smoother and a little sounder appearing than most Reid's Yellow Dent as it was selected at that time.

From there the story moves ahead over half a century. On June 25, 1959, I went to Taylorville, Illinois, called at the office of *The Daily Breeze and Courier*, and spent a full half day thumbing through the old bound volumes of *The Daily Breeze*, as it was then named, for the years of 1903 and 1904. I finally found the following item down in the corner of the front page.

The Daily Breeze — Taylorville, Illinois — March 21, 1904
Found it in Christian

"Professor Holden of the Agricultural College at Ames, Iowa, who has been in the state looking for seed

72 CLINTON COUNTY, IOWA, CORN YIELD TEST

corn for his state, has at last found what he wanted in Christian County. Saturday he closed a deal with C. A. Peabody, Ross Peabody and Sylvester Schrantz for 350 bushels of their celebrated Reid's corn. This corn tested 95 percent. The Iowa college is getting this to donate to elevator men in the state, who in turn select three of the best farmers in their section and donate the corn to them."

The similarity of the name Schrantz to the name "Schram" that Professor Holden remembered is easily noted.

On inquiry, it was learned that of the three men from whom the seed was purchased, only Ross Peabody was living. A visit with Mr. Peabody, a kindly gentleman of 80 years, on his farm six miles south of Stonington, Christian County, who had retired from its active management only three years before, was most interesting.

Mr. Peabody remembered the details of the incident very clearly. In fact he began to tell about it as soon as I asked if he remembered Professor Holden and before I had indicated the reason for my visit.

Mr. C. A. Peabody was the man who had developed the productive-appearing strain of Reid's Yellow Dent. He had sold considerable seed in Christian County for several years and had built up a local reputation as the newspaper item indicates. Ross Peabody was his son and Sylvester Schrantz was a young neighbor.

The carload of seed was selected from the cribs of the three men. They selected about ten percent of the ears for seed.

Now to go back to Professor Holden's story. He told how he shelled each ear of the seed separately, hand picked the shelled corn, and put it up in small sacks for distribution at 25 cents per sack by the grain dealers all over Iowa. Holden said that *Wallaces Farmer* distributed some of the same seed.

Professor Holden told that a few years after the distribution of the Illinois Reid's Yellow Dent seed, representatives of the Corn Products Millers came to him and wanted to know what had happened to the corn being planted in Iowa, reporting that there had been a very great improvement in quality and uniformity in much of the corn which was coming to the mills. There can be little doubt that the carload of "productive-appearing" Reid's Yellow Dent seed purchased in Christian County, Illinois, and distributed by the Iowa Grain Dealers Association and *Wallaces Farmer* was largely responsible for much of the improvement.

A corollary to this story is the following: *Wallaces Farmer* required each boy entered in the corn growing contest to select 12 ears grown from the distributed seed and send them to Des Moines to be judged by Professor Holden and his assistants.

Wallaces Farmer of December 25, 1903, indicates that among the several hundred contestants, Ben Studeman of Clinton County won 7th prize in the Central Iowa District and C. W. Greve, Jr., of Clinton County the 11th prize.

Wallaces Farmer of December 23, 1904, states that the 3rd prize in the Central District was awarded to Ben N. Studeman of Clinton County. Thus the two samples, Studeman and Greve, which proved most satisfactory in the three years of the Clinton County Yield Test also were of such appearance that Professor Holden and his assistants recognized their worth in the samples of seed selected for the corn show.

FINAL RESULTS OF THE CLINTON COUNTY CORN YIELD TEST

Final results of the tests are well indicated by excerpts from a letter written by John Coverdale in 1921 which was six years after the tests were closed. Mr. Coverdale had grown up in Clinton County and was farming there when the tests were begun. He was the first

State Leader of County Agricultural Agents in Iowa, 1915 to 1918, and was Secretary of the American Farm Bureau Federation when he wrote the letter.

I have your announcement of the Woodford County Corn Test which will be given to the public on January 5 and 6, 1922. . . . Wish to state that the corn test that you conducted in Clinton County, Iowa, . . . is today resulting in the adoption all over the county of the variety of corn that stood first in your county test. (He referred to the Studeman corn.) This corn is proving very practical, is always safe from the standpoint of maturity and is a good yielder.

Some estimated that about three-fourths of the corn in Clinton County preceding the introduction of hybrid corn was of the Studeman strain of Reid's Yellow Dent.

TYPE OF CORN RECOMMENDED FOR CLINTON COUNTY

The type of seed corn to be selected was very important in those days when farmers selected their own seed. The following description of the type of corn suggested for Clinton County conditions is from one of my reports published at the close of the three-years' test:

The ear is rather long for its circumference having the appearance of being a little slender. It tapers for a third of its length toward the tip rather than being cylindrical. The kernels are wide but of medium length, being neither long nor short. The dent is smooth to medium.