Home-Made Seed Corn Testers

H. D. Hughes

Iowa State College
Home-Made Seed Corn Testers

Abstract
The seed corn situation in the corn-belt states this year is serious. Not as much seed corn was saved last year as usual, and a large number of tests made in different sections of the state show this to be very low in vitality. Very little of it is fit to plant without first being carefully tested.

Most farmers who had seed for sale have already sold out their surplus, so the bulk of the corn planted this year on Iowa farms will have to be saved from the corn grown upon the farm the past season. The only way that ears from this crop fit for seed can be secured is by use of the individual ear germination test.

Keywords
Farm Crops

Disciplines
Agricultural Science | Agriculture | Agronomy and Crop Sciences

This article is available at Iowa State University Digital Repository: http://lib.dr.iastate.edu/iaes_circulars/10
The seed corn situation in the corn-belt states this year is serious. Not as much seed corn was saved last year as usual, and a large number of tests made in different sections of the state show this to be very low in vitality. Very little of it is fit to plant without first being carefully tested.

Most farmers who had seed for sale have already sold out their surplus, so the bulk of the corn planted this year on Iowa farms will have to be saved from the crop grown upon the farm the past season. The only way that ears from this crop fit for seed can be secured is by the use of the individual ear germination test.

**VALUE OF INDIVIDUAL EAR TEST.**

That the individual ear test is very effective and that it does show definitely the vitality of each ear before they are planted was demonstrated in thorough experiments at the Iowa Agricultural Experiment Station in 1910 and 1911. More than 40,000 individual ear test readings were made with average good seed corn. Each year the planting of this corn broke out the test. In 1910, the testing before planting increased the profit per acre 33.6 per cent and in 1911 85.7 per cent; it increased the yield 19.6 bushels per acre in 1910 and 10.1 bushels in 1911.

In comparing 6,139 readings in which the ears tested 6-0-0 (6 strong) with 1898, in which the ears tested 5-1-0 (5 strong, 1 weak), the planting of the ears in which but 1 of the 6 kernels tested was shown to be weak decreased the stand 6 per cent and the yield 3.4 bushels per acre. The planting of ears which had but 1 dead kernel out of the 6 tested, decreased the stand 10.8 per cent and the yield 6.2 bushels per acre.

**HOME-MADE TESTERS EFFECTIVE.**

In making the tests thirteen testers were compared, including most of those now offered on the market, as well as those which can be made at home.

It was fully demonstrated that the testers which can be made at home at little or no expense pick out more good seed, which will give as large yields as the ears picked out by the much advertised and expensive manufactured testers. Also, the manufactured testers have, on the average, thrown out as worthless 20 per cent more ears than the home-made testers, with a resultant loss of $1.00 per acre planted of seed corn. Some of the manufactured testers cause a good deal of valuable seed corn to be thrown away.

**THE WATER METHOD**

Those testers, both home made and manufactured, which employ what is commonly known as the “water method,” have usually thrown out as worthless a great many more ears than have the testers using sand, sawdust and cloth or blotters. The main advantage of the water method is its convenience and its cleanliness.
When labor is considered as worth 20 cents per hour, the cost of testing 100 ears has ranged from 15.6 to 45.3 cents. The cost with the Rag Doll was 18.2 cents and with the Sawdust Box 26.7 cents. It will be seen that from this standpoint the home-made testers must be considered very favorably.

A bulletin is now ready for publication giving full details of the two years' work in testing and planting seed corn and it will be ready for distribution soon.

DIRECTIONS FOR MAKING AND OPERATING HOME-MADE TESTERS

THE SAWDUST BOX TESTER

The Sawdust Box Tester with kernels in place.

Any box 3 or 4 inches deep and 30x30 inches in size may be used. Fill it about half full of moist sawdust well pressed down to an even surface. Before using the sawdust should be put in a sack and soaked in a tub of warm water for at least an hour (or still better, over night). Cut a piece of cloth, white muslin, about the size of the box rule off 2½-inch squares in checker board fashion. Number the squares 1, 2, 3, and so on. Place it over the sawdust and tack to the inside of the box at the edges and corners.

Lay out the ears to be tested side by side or on a table where they may remain through the test without being disturbed. Remove 1 kernel from near the butt of ear, No. 1, the middle, and the tip. Turn the ear over and remove 3 more kernels from the opposite side in a like manner, taking 6 kernels in all and securing a sample from the entire ear. Place the 6 kernels at the end of the ear from which they were taken. Proceed in the same way with each ear and use care that the kernels do not get mixed. After the kernels are removed lay boards over the rows of corn to keep them in place until the germination is known.
Place the kernels from the ear No. 1 in square No. 1 of the germination box; from ear No. 2 in square No. 2, and so on with all the ears. Cut a good piece of cloth the size of the box and lay it on top of the kernels and dampen by sprinkling water over it. Then place over this a cloth about again as large as the box and fill in on top of this with about two inches of moist sawdust and press down firmly. Finally fold the edge of this cloth over the sawdust to cover it. Next set the box in a warm place where it will not freeze.

The kernels will germinate in about 6 days. Then remove the cover carefully to avoid misplacing the kernels in the squares. Examine the kernels. If one or more kernels in any square are dead or if some of the kernels are decidedly weaker than others, throw away the ear from which they came.

SPECIAL THINGS TO BE OBSERVED.

Be sure to soak the sawdust at least one hour, or better still, over night.

Use good quality of sheeting for the cloth that is marked off in squares and the cloth which is laid over the kernels.

Leave at least 2 inches margin between the squares in the box to prevent freezing and drying.

Never use the box a second time without first thoroughly scalding both the cloth and the sawdust. Take out both the cloth and the sawdust to do this.

Do not open too soon. The best reading may be made when the stem sprouts are about 2 inches long.

Throw out all ears showing injured germination as well as the worthless ones.

THE RAG DOLL TESTER

One of the cheapest as well as most convenient and accurate methods of testing seed corn is known as the “Rag Doll” method.

For this test buy a few yards of sheeting of good quality and tear it into strips 8 inches wide and from 3 to 5 feet long. If it is planned to use the strips a number of times, hem the edges, as otherwise the ravelings sometimes disarrange the kernels in unrolling.
Down the middle of each cloth strip, lengthwise, draw a line with a heavy pencil. Then draw cross lines at right angles to the first to divide the strip into squares about 3 inches wide, as shown in the accompanying illustration. Number the squares, as shown in the illustration, also.

Wet one of the strips thoroughly and stretch it out in front of the ears to be tested. Take 6 kernels from ear No. 1, as was described in the Sawdust test, and place in square No. 1; take 6 kernels from ear No. 2 and place in square No. 2, and so on.

When the cloth has been filled, begin at either end and roll the cloth up. If the cloth is well moistened the kernels will not push out of place. When the cloth has been rolled, tie a string around each end rather loosely, or better still, use a rubber band. Number this roll No. 1. Then proceed with roll No. 2 in the same way. As many rolls may be used as are necessary to contain the corn which one has to test. From 30 to 50 ears can be tested in each roll, depending upon the length.

After the rolls have been filled they should be placed in a bucket or tub of water where they may remain from 2 to 18 hours, depending upon the preference of the operator. At the end of this time pour off the water and turn the bucket or tub upside down over the rolls, or use a common dry goods box for this purpose. A couple of small pieces of wood should be laid under the rolls and one edge of the pail should be lifted from \( \frac{1}{2} \) to 1 inch in order to give ventilation. At the end of 5 days the kernels should be ready to read.

Depending upon the arrangement of the ears, select, first, either roll No. 1 or the last roll filled. This cloth will be unrolled in front of the ears represented. Examine all kernels carefully, as in the Sawdust test. In all cases in which all 6 kernels are not strong in germination the ear should be thrown away.

Both of these methods are so simple and inexpensive, and the seed corn situation is so serious, that no farmer can afford to plant seed that has not been carefully tested.

**ADVANTAGES OF THE RAG DOLL.**

1. The cheapest tester which can be made.
2. Anyone can make the tester in a moment’s time.
3. Corn may be placed in the tester and the test read approximately as quickly as any other tester.
4. If one wishes to use the “water” method, the construction of this tester is well adapted for this. If saturated atmosphere with moist cloth contact is desired, this may be secured by leaving the rolls in the water only long enough to become thoroughly moistened.
5. Less mould develops in this tester than any other.
6. May be disinfected for mould most easily.
7. Very compact, and can be moved from one place to another without difficulty.
8. All parts of the kernel, roots, shoots, etc., can be readily seen.
9. Gives an accurate test, as indicated by field results.