

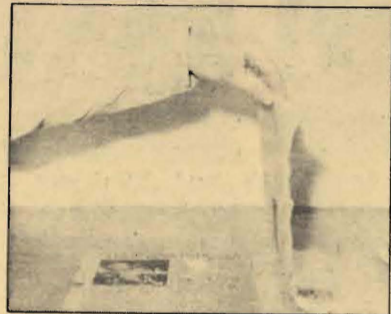
# GERMINATION TESTS

*for farm seeds*

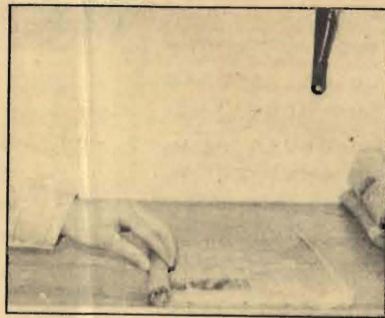
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erance of the Acts of Congress of May 8 and June 30, 1914.



1. Take one full sheet of newspaper, divide in the center, fold each half once and soak in water ten minutes. Place counted seed on paper and cover.



2. Roll the test firmly enough to hold the seed in place. Rolling too tightly will exclude air and a poor test may result.



3. Place roll in bucket or similar container with other tests as shown. At end of first day, drain off excess water.

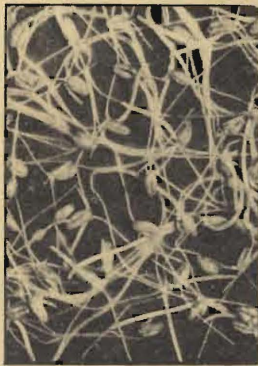


4. Cover the tests with wet newspapers or cloth to reduce drying. Look at the tests from day to day and moisten as necessary.



# Test Your Seed --- Be Sure It Grows

Test your crop seeds before planting to find out how many will germinate and develop into sturdy plants. Seed tests can be made at home. Be sure samples you test are fully representative of all your seed and that the test is properly made and counted.



Good vigorous germination capable of producing maximum stand.



Low germination - diseased or weak sprouts. Cannot produce normal stand.

## Taking Sample

Samples for testing must be representative of the lot, and in the condition it will be planted or sold, otherwise the test will be useless.

**Small grains and small seeds:** Take a handful of seed from several parts of bin, such as near top, in middle and towards bottom. If seed is sacked, then take samples from different sacks. Place in a bucket and mix thoroughly. Then take 100 seeds at random (do not pick all plump seed).

**Corn:** Two general plans for testing are (1) Bulk, where a number of ears are shelled and a representative sample is taken, and (2) ear-test, in which ears are numbered and 5 or 10 kernels taken from various parts of each ear excluding butt and tip kernels which usually are graded out.

Place these kernels in tester so results for each individual ear can be determined. Usually a bulk test is made first and if the germination is 90 percent or better, an ear-test is unnecessary. However, where test is low, then individual ear-test can be used to locate high germinating ears and to discard ears of poor germination.

The "rag-doll" method is the most popular method of home testing but any of the three methods described here can be used.

1. **Rag-doll Method.....**Use heavy water-absorbing cloth or absorbent paper. Two layers thoroughly soaked newspaper are satisfactory. Place moistened paper or cloth on layer of waxed or heavy wrapping paper, glossy side up. Waxed paper reduces evaporation and keeps sprouts from piercing through testing cloth.

Space seeds so they do not touch each other - corn 1 inch apart germ side down, smaller seeds about 1/2 inch apart. If ear testing corn, place kernels from each ear in a single row, starting first row 2 inches from left side and first kernel in row 2 inches from top with 10th kernel in row coming 3 inches from bottom. Now start kernels from ear 2 in a row 2 inches from row 1 and continue until kernels from 10 ears are placed in individual rows.

Sprinkle lightly with water, then roll from left so as not to disturb kernels. Roll just tight enough to hold kernels in place but do not make too tight. Tie ends with string or fasten with rubber band. Place rag-doll in jar, can or pail containing just enough water to cover lower end 3 inches. This is the part of the rag-doll that contained no seed.

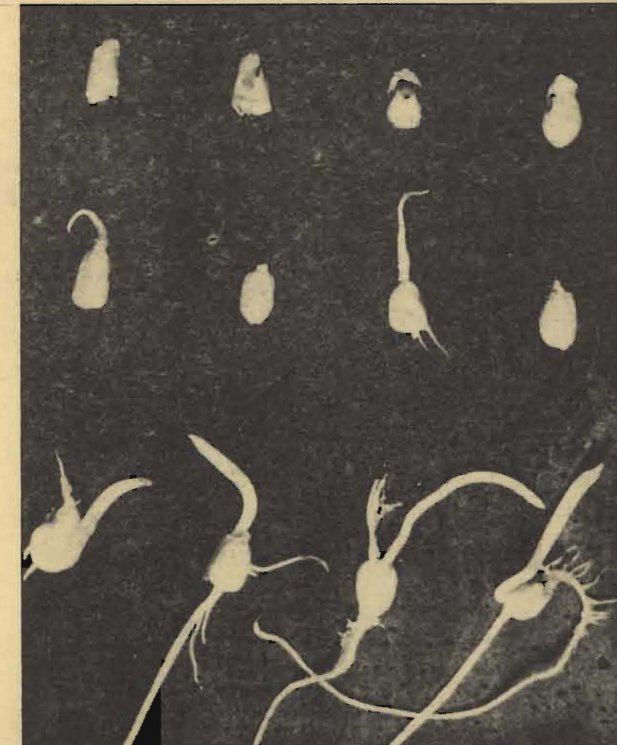
2. **Plate Method.....**Place thick, soft clean absorbent cloth, such as outing or canton flannel, a double paper towel, or four folds of newspaper, thoroughly moistened, on a dinner plate or pie tin. Place seeds in

rows between folds and cover with another plate upside down to reduce evaporation.

3. **Soil Method.....**Fill a small wooden box, or pan, about 10" x 20", with about 4 inches of fine sand or sandy loam, soil, free of lumps and trash. Moisten soil well so it will pack easily but is not soaked. After seeds have been placed, cover with 1 or 2 inches of soil. This method of testing is the most natural as sprout must push up through soil, giving better opportunity to observe vigor of seedlings.

## Temperature - Moisture

Temperature should be 60 to 70 degrees Fahrenheit. Lower temperatures of 40 to 50 degrees will do no harm except to retard speed of germination. Corn must have the higher temperature. Avoid freezing temperatures.



Healthy vigorous sprouts, weak sprouts and dead seed. The weak sprouts should not be counted as they are unlikely to establish plants in the field.



Higher temperatures than 80 degrees are undesirable because they aid development of molds harmful to seed. Seeds need heat, air and moisture in proper proportions for growth. Seeds must be kept moist but not wet. Drain off excess water.

## Germination Count

With the soil method, count only seedlings that appear above the surface. With plate or rag-doll method, count only those seeds producing good vigorous sprouts and roots. Do not count as germinating stunted, weak, or abnormal sprouts because under field conditions they will seldom, if ever, result in normal plants.

Most tests can be read after 4 to 7 days, depending upon temperature used and moisture available. Watch daily after fourth day and count germinated seeds before roots become entangled.

## Interpreting the Test

A germination test simply shows the percentage of seed that can grow under favorable conditions. Germination, while important, is not the only

*(Pictures furnished by Agronomy Department, South Dakota Agricultural Experiment Station.)*

basis for judging seed value. There is a distinct difference in size and vigor of the sprout and young seedlings from light, shriveled seed as compared to those growing from heavier, plumper seed. This difference should be considered carefully.

Young seedlings from shriveled, light seed will be less likely to recover from severe freezing temperatures, especially under drouth conditions. Freedom from disease, other crop mixtures, or harmful weed seeds are other points to consider in determining seed value.

## Germination Standards

Corn .....	95-99 percent
Hard Red Spring .....	90-95 percent
Durum Wheat .....	85-90 percent
Barley .....	90-95 percent
Oats .....	90-95 percent
Rye .....	90-95 percent
Flax .....	85-90 percent

## Official Tests

If you doubt the accuracy of your own test, then send a sample to the State Seed Department, Fargo. Each North Dakota resident is annually entitled to three free tests.

**NOTE:** Whenever weed seeds are found with which you are not familiar, have them identified by your County Extension Agent or by the Botany Department of NDAC Experiment Station, Fargo.