



# Seed Germination: Paper Towel Test

The “Paper Towel” test is a simple method for determining percent seed germination before planting.

## Obtain Seed for Testing

1. Take 3 to 5 handfuls of seed from different places within a larger bag of seed for planting. The idea is to get a representative sample of all the seed for planting
2. Clean (i.e. remove dirt, weed seeds, etc.) and mix the sampled seed
3. For small seeds like wheat, randomly select 100 seeds from the sample. Fifty (50) seeds may be enough for larger seeds like corn, peanuts, and soybeans

**Optional:** Soak seeds in water for about 8 hours. This will prevent the seeds from drying out during the test. Do not soak longer than 12 hours—this can kill the seeds



**Figure 1.** Rolling of paper towel into a tube

## Prepare the Paper Towel

1. Completely wet a paper towel with water and squeeze out excess moisture. **Note:** If there is too much water, the seeds may rot and die
2. Lay the paper towel on a clean surface and place the seeds evenly spread on the paper towel
3. Roll the paper towel into a moderately tight tube (Fig. 1)

**Optional:** Place a second moist paper towel over the seeds before rolling into a tube to keep seeds in place

4. Place tube in a plastic bag and close it. This will help keep the paper towel and seeds moist – **but not wet** – during the germination period
5. Place plastic bag in a warm place; somewhere between 21 to 30 °C
6. After a couple of days, check to see if the paper towel is still moist. Add some water, if necessary

## Count Germinated Seed

1. After 4 to 7 days, unfold the towel and count the number of germinated seeds

**Optional:** After 3 days, unfold the towel and count the number of germinated seeds. Make a second count after another 4 days. Two counts are done to see if there are differences between seed lots in terms of vigor. For example, two seed lots may have the same total germination, but one may have greater germination after 3 days and thus greater early vigor

## Estimate Percent Germination

1. If you started with 100 seeds, the number of germinated seeds counted gives the percent germination. **Note:** Dead seeds usually do not absorb moisture and may be moldy at the end of the germination test. Dormant seeds (that have not germinated) can be easily flattened by gently pushing down on them with the flat part of a pencil

**For more information:** [eafghanag.ucdavis.edu](http://eafghanag.ucdavis.edu)

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**Reference:** USDA [ftp://ftp-fc.sc.egov.usda.gov/GA/PMC/JLW/ragdoll.pdf](http://ftp-fc.sc.egov.usda.gov/GA/PMC/JLW/ragdoll.pdf)

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