Fact sheet

Seed Germination Testing (Ragdoll)

"Ragdoll" Test for Seed Germination

The "ragdoll" is a fairly simple way to test seed germination before planting.

Figure 1. Rolling of paper towel with seed into a tube.

1. Collect Seed Sample for Testing

1. Take 3 to 5 handfuls of seed from different places within the seed you will use for planting.
2. Clean (i.e. remove dirt, weed seeds, etc.) and mix the sampled seed. The idea is to get a sample that represents all the seed used for planting.
3. For small seeds like wheat, select 1 or 2 samples of 100 seeds from the sample. Samples of 50 seeds may be enough for larger seeds like corn, peanuts, and soybeans.
   Do not select seed – choose randomly.

Optional. Soak seeds in water for about 8 hours. This accelerates germination. Do not soak longer than 12 hours—this might kill the seeds.

2. Prepare the Paper Towel

1. Completely wet a paper towel with water and squeeze out excess moisture or hold up for 5-10 seconds until excess moisture stops running off. **Note:** If there is too much water, the seeds may rot and die.
2. Lay the paper towel on a clean surface and evenly spread the seeds on the paper towel.
3. Roll the paper towel into a moderately tight tube (Figure 1).

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

4. Place the seed 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 ºC.
6. After a couple of days, check to see if the paper towel is still moist. Add water, if necessary.

3. Count Germinated Seed

1. After 4 to 7 days (depending on crop), unfold the towel and remove and count the number of germinated seeds. If you are testing vigor (or if the germination count is low), put the seed back in the plastic bag making sure the paper towel is still moist.

Optional: After 3 more days, unfold the towel and count the number of newly germinated seeds. You can even make another count after 4 more 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.

4. 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) absorb moisture but do not germinate – dormant seed can be easily flattened by gently pushing down on them with the flat part of a pencil.

Prepared by Mark Bell, Jessica Schweiger, Nick Madden

ip.ucdavis.edu

UCDAVIS
COLLEGE OF AGRICULTURAL AND ENVIRONMENTAL SCIENCES
INTERNATIONAL PROGRAMS