

Top-of-paper method

This method is most suitable for species with seeds smaller than 2 mm in diameter such as small-seeded vegetables and forage grasses. The seeds are germinated on top of moist absorbent paper in containers with close-fitting lids to prevent moisture loss. Commonly used containers include 9 cm glass or plastic Petri dishes.

1. Sterilize container surfaces by wiping with 70–95% alcohol or soaking in 20% bleach or hot water at 55°C for 10–15 minutes.
2. Cut the absorbent paper to the size and shape of the container. For Petri dishes, round filter paper such as Whatmann Grade 181 of appropriate diameter can be used.
3. Place the paper substrate at the bottom of the container or Petri dish.
4. Label containers with accession number, number of replicate and testing date; use a pencil or permanent marker for labelling.
5. Add the required volume of distilled water. If distilled water is not available, boiled and cooled tap water can be used. The volume of distilled water depends on the thickness of the paper substrate and the size of container. For Whatman Grade 181 filter paper in 9 cm Petri dishes, 4 ml of water is required. The filter paper should not be so wet that a film of water forms around the finger when it is pressed.
6. Firm down the paper substrate in the container using an upsidedown funnel or tweezers.
7. Spread the seeds uniformly on the surface of the paper so that they are not touching. It is recommended that the distance between seeds should be at least three to five times the seed diameter.
8. Cover the containers and ensure that there is no air lock resulting from excess moisture on the covers.
9. Place the containers in a germinator or incubator maintained at the recommended temperature for germination of the species (see guidelines for testing germination of the most common crop species).
10. Check the moisture level of the substrate regularly, especially when humidity inside the cabinets is not controlled or when the temperature is set at 25°–30°C. Blotters usually need to be watered several times during the test. Alternatively, keep the containers in a thin plastic bag (loosely folded at the open end, but not sealed to allow diffusion of oxygen) to prevent the substrate from drying.
11. Run the test for the recommended period (see guidelines for testing germination of the most common crop species) and count the number of seeds that have germinated.
12. If some seeds have not germinated and appear to be dormant, treat with appropriate techniques to stimulate germination (see guidelines for testing germination of the most common crop species) and continue the test until all seeds have germinated or until no further germination has occurred after two consecutive counts.
13. Make a note of the seeds that did not germinate but are firm and sound at the end of the first count, and those that failed to germinate and are presumed dead at the end of the germination test.