

Seed Germination Protocol

Pre Soak

This technique drastically reduces any fungal/bacterial growth that may occur and helps to induce germination.

- Soak seeds in 0.5% H₂O₂ for 24 hours before placing into preferred media.
- Use tap water and make a 6:1 dilution of 3% H₂O₂ (this can be sourced from the drug store), agitate into a clean baggie or jar to fully coat seeds and allow to sit at room temperature for 24 hours. These can be in darkness or light.
- Drain seeds using strainer and place into paper towel or bowl- you are now ready to transplant into substrate and get to actually germinating.



You won't see the seeds actively germinating at this point. You may only see slightly cracked seeds or the radicle poking out slightly. This phase is meant to clean the seed and induce germination- the seed will actually grow when you transplant it to one of the following medias.

Aggregate substrate

(vermiculite, coco-perlite, potting soil)

This is the best substrate for seedlings!

- Fill cell tray or very small pots (3" maximum size) with aggregate. Don't pack it down, but keep it rather loose. We love to use Growcoons when using aggregate.
<https://growcoon.com/en/the-growcoon>
- Place seed into substrate and gently bury 1-2 cm deep
- Moisten with light spray, don't saturate. It's easy to drown the seed if you are using a hose or watering implement that outputs too much liquid at once. You can use low EC nutrient solution (1-1.5 EC) or tap water if the potting soil you are using has a compost element to it. You still want the substrate to be wet all the way through, but not soaking wet to the point that there is runoff.
- Place dome on tray vented under 100 ppfd for 3-5 days, burping daily and slowly increasing venting from 0% to 100% vent open after 3-5 days. Target temperature is between 78-85F (25.5-29C) and humidity is 70-85%.
- After 3-5 days, remove dome, place under stronger light levels (200-350 ppfd). Target temperature is between 78-85F (25.5-29C) and humidity is 65-80%.
- After 7-10 days, seeds can be kept at high light levels to reduce elongation (500 ppfd). Water with nutrient solution between 2.0-3.0 at this phase. Target temperature is between 78-85F (25.5-29C) and humidity is 65-80%.
- After about 14-21 days or once the seedlings have 2-5 sets of true leaves, you can remove them from the cell tray and transplant into a larger pot such as a 4" pot. It's important not to remove them too soon where the substrate isn't fully encircled with roots. If the substrate falls apart when you attempt to transplant, keep growing them in that substrate until it lifts out all in one unit. The Growcoon helps a lot with this phase.

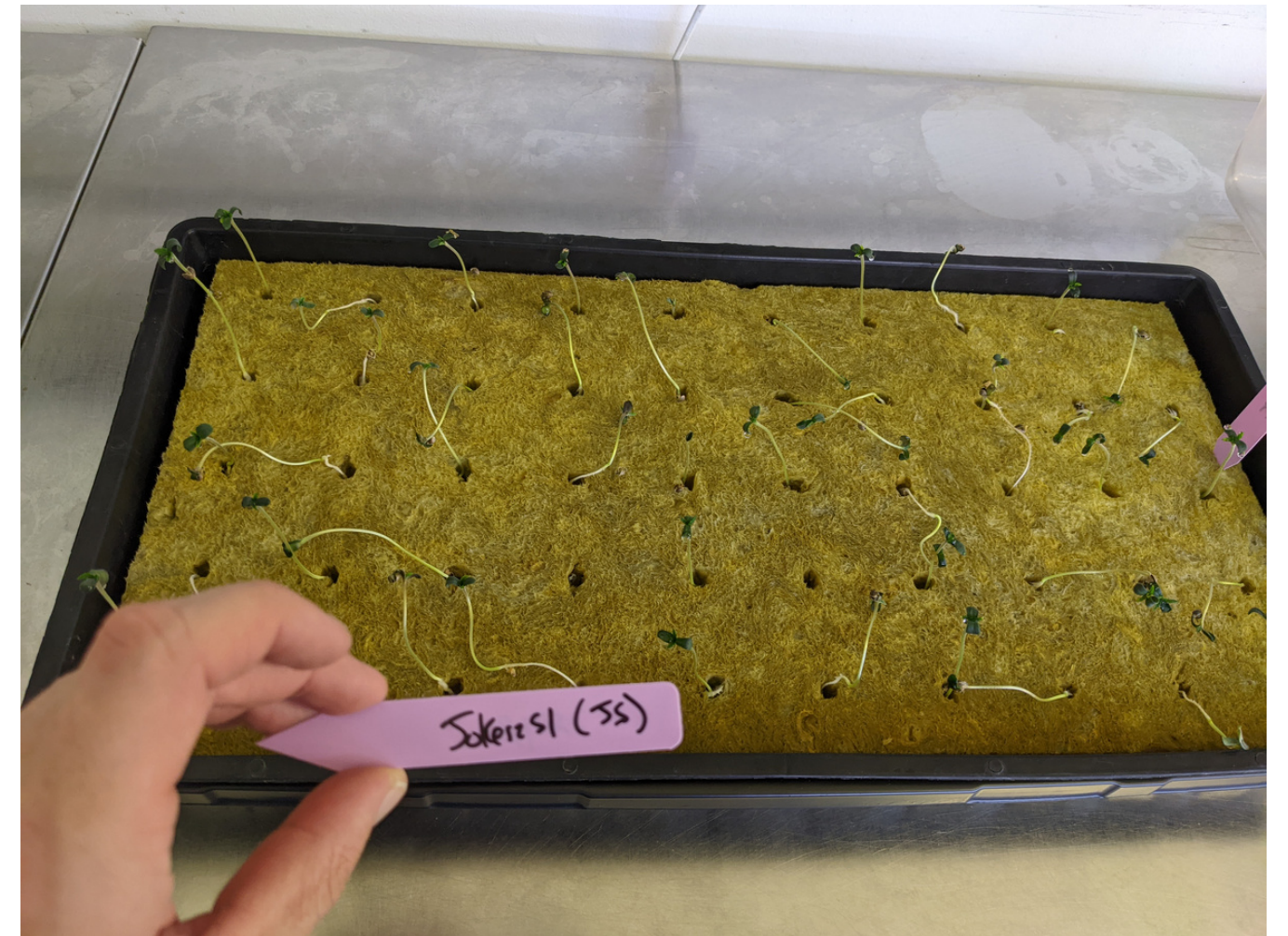


This size seedling is ready to be transplanted.

Rockwool

Not great for seedlings, but super easy to move around and transplant once they germinate.

- Soak substrate in 1.5 EC clone solution and drain excess solution for 3 minutes.
- Enlarge dibble hole in rockwool to 1 cm wide using forceps or another pointy implement. Small dibble holes can cause the seed to fail because it gets caught and breaks during elongation.
- Carefully place seeds using forceps or your fingers into dibble hole at a depth of only 3-10mm. It is critical that the seed isn't stuck too firmly or it can fail.
- Place dome on tray vented under 100 ppfd for 3-5 days, burping daily and slowly increasing venting from 0% to 100% vent open after 3-5 days. Target temperature is between 78-85F (25.5-29C) and humidity is 70-85%.
- After 3-5 days, remove dome, place under stronger light levels (200-350 ppfd). Target temperature is between 78-85F (25.5-29C) and humidity is 65-80%.
- After 7-10 days, seeds can be kept at high light levels to reduce elongation (500 ppfd). Water with nutrient solution between 2.0-3.0 at this phase if the substrate feels light. Target temperature is between 78-85F (25.5-29C) and humidity is 65-80%.
- You may need to stake the seeds to prevent them from falling over. Use twist ties to accomplish this.
- Transplant once the seedlings have 2-5 sets of true leaves.



These seeds either didn't have enough light or wind, and have now fallen over. These should be staked using twist ties or with collar tags.

Peat Plugs

- Soak substrate in 1.5 EC clone solution and drain excess solution by gently squeezing excess moisture out- only about 10-20mL. Plug flats work well for seed germination in peat plugs.
- Use plugs with a larger dibble hole- small dibble holes can cause the seed to fail because it gets caught and breaks during elongation.
- Carefully place seeds gently into dibble hole at a depth of only 3-10mm. It is critical that the seed isn't stuck too firmly or it can fail.
- Place dome on tray vented under 100 ppfd for 3-5 days, burping daily and slowly increasing venting from 0% to 100% vent open after 3-5 days. Target temperature is between 78-85F (25.5-29C) and humidity is 70-85%.
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- Transplant once the seedlings have 2-5 sets of true leaves.

Most Common Problems Germinating Seeds

Damping Off

Stem or seed rot that kills plant.

Caused by: Excess humidity, lack of cleanliness during process, excess botrytis/PM during seed harvest. Keeping domes on too long.

Prevent with: Dilute hypochlorous acid wash. Clean station and tools. Keep seeds separate and not too crowded. Don't overwater



Etiolation

Excessive extension of the

Caused by: Lack of light, air movement.

Prevent with: Dilute hypochlorous acid wash. Clean station and tools.

Germinating Upside Down

Radicle extends in wrong direction, leading to seed extending downwards

Caused by: Misplacement of seed

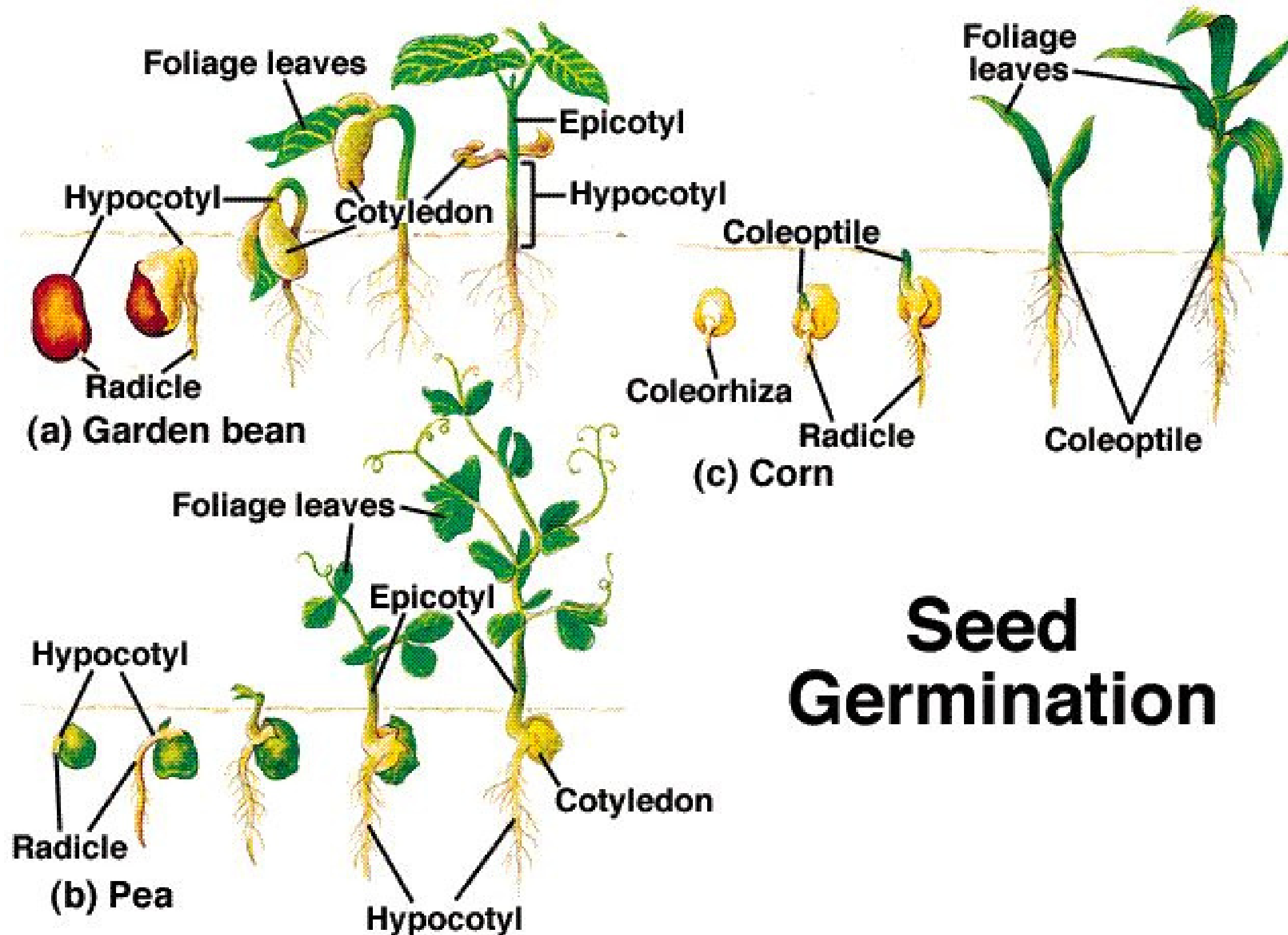
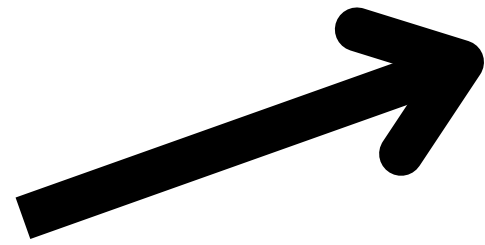
Prevent with: Paper towel technique or looser substrate (aggregate)



Germination Lexicon

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Epigeal
Germination
Cannabis



Hypogeal
Germination

**Seed
Germination**