

Why Did My Seedling Die?

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Watching a seedling that you have carefully planted go through the germination process then fail and die is a disappointment we've all experienced. Why does this happen and how can we prevent it?

The major factors that govern good germination are also important as seedlings start to peep above the soil level. The growing medium, temperature, and moisture are all key factors in successful germination, but they also can create problems as the seed grows, if they are not properly controlled. Light and air circulation are added challenges once a seed sprouts.

A good growing medium is light and fluffy and contains no disease-causing organisms. Using garden soil as part of any seed-starting mixture exposes seedlings to soil-borne diseases. The best growing medium is a commercial, sterilized seed-starting mix.

A constant, warm temperature is essential for fast and consistent germination. Large temperature fluctuations stress young plants, leaving them more susceptible to disease. Colder, moist conditions favor the development of fungal diseases which can kill seedlings. Using a waterproof heat mat under the pots can largely control the temperature issue.

Moisture, too little or too much, can be a real killer. Too dry a potting mix results in poor germination and uneven or stunted growth which stresses plants. The combination of too much moisture from overwatering and a warm atmosphere creates ideal conditions for fungal diseases. This is made worse if a non-sterile growing medium is used and/or plastic domes are left over the plants for too long after germination. To avoid overwatering, check the soil with your finger and water only if it feels dry; do not wet the foliage.

Light is critical for plant growth after germination. In the Northwest, even a south-facing window may not provide enough light for good growth and we often need to resort to supplemental lighting. Supplemental lights need to be as close to the plants as possible but not touching. In addition, they need to be raised as the plants grow. If you do not use supplemental lighting or the lights are too far away, you will often get long thin seedlings as they "reach" for more light. This produces weak, disease-susceptible plants.

Good air circulation is also important. Remove plastic domes or open their vents after seeds have germinated to improve air flow over the seedlings and reduce the humidity.

The most common cause of early seedling death is “damping-off,” a fungal disease which affects the new plant stem just at soil level. The stem becomes brown, rots and the little plant topples over and dies. Damping-off fungi are more of a problem in cold soils with poor drainage, and in conjunction with overwatering.

So remember, for successful seed germination and seedling growth, use sterile planting media, maintain a constant temperature, keep the planting media moist but not too wet, provide adequate light and ensure good air flow!