

Growing Plants from Seeds

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A very rewarding project

Growing plants from seeds is a great late winter/early spring project. If you're willing to spend the time, you'll be ready to fill in spaces in your garden and your decorative pots.

Let's start with the basics of germination. Four environmental factors affect germination: water, light, oxygen, and heat. Different seeds have different requirements, especially for heat and light. Seed catalogs and the seed packet often list germination or cultural tips for individual varieties.

An adequate, continuous supply of water is important to ensure germination. Although seeds have a great ability to absorb water, the amount of water available in the soil medium affects absorption. Once the germination process has begun, a dry period will kill the embryo. Keep the soil moist.

Light can stimulate or inhibit germination of some seeds. The light reaction involved is complex. Some crops require light for seed germination. Examples are ageratum, begonias, browallia, impatiens, lettuce and petunias. Others (such as calendula, centaurea, annual phlox, verbena and vinca) require darkness. For some plants, light doesn't matter at all.

When sowing seeds that require light, leave them on the soil surface, or at most, cover them lightly with fine peat moss or vermiculite. These materials, if not applied too heavily, permit some light to reach the seeds and do not limit germination. You can provide supplemental light by suspending fluorescent light 6 to 12 inches above the seeds for 16 hours a day.

In all viable seed, respiration takes place. Respiration is the conversion of the stored carbohydrates within the seed into energy for plant growth, a process that requires oxygen. It not only affects the germination success, but also speeds germination into energy. The respiration rate in non-germinating seed is low, but some oxygen still is required. Because respiration increases during germination, the medium in which seeds are planted should be loose and well aerated. If the oxygen supply is limited, germination can be severely inhibited. Use a seed starting mixture available at your local garden center for better results.

Temperature of the planting medium is another important factor in germination. It not only affects germination percentage, but also speeds germination. The importance of maintaining proper temperature cannot be overemphasized.

Some seeds germinate over a wide range of temperatures, while others require a narrow range. Many seeds have minimum, maximum and optimum temperatures for germination. For example,

the minimum germination temperature for tomato seed is 50 degrees F. and the maximum is 95 degrees F., but the optimum is about 80 degrees F.

When germination temperature is listed on a seed packet, it is usually the optimum temperature unless otherwise specified. Generally, 65 to 75 degrees F. is best for most plants. You may need to place germination flats in special chambers or on radiators, heating cables, or heating mats to maintain the optimum temperature.



Above Left: A general rule is to plant a seed twice as deep as its diameter. **Above Right:** This scarlet runner bean passed the germination test and is ready for planting. *Photos by Christine Farrow / WSU Skagit County Master Gardeners.*

To determine the best time to start your seeds indoors, you will need to count back from the normal last spring frost in your area. The following is a list of some common plants and approximately how many weeks before that normal last frost that you will need to start them:

- 12 Weeks or more: begonia, browallia, geranium, larkspur, pansy (viola) and vinca
- 10 Weeks: dianthus, impatiens, petunia, portulaca, snapdragon, stock, verbena
- 8 Weeks: ageratum, alyssum, broccoli, cabbage, cauliflower, celosia, coleus, dahlia, eggplant, lettuce (head), nicotiana and phlox
- 6 Weeks: aster, balsam, centaurea, marigold, tomato, zinnia
- 4 Weeks, or less: cosmos, cucumber, muskmelon/canteloupe, squash, watermelon



Left: Tiny seeds can be difficult to handle. **Center:** If the germination rate is high, the seedlings will need to be thinned when their true leaves start to emerge. **Right:** An adjustable artificial light source can help to stimulate and control the growth rate of seedlings. *Photos by Christine Farrow / WSU Skagit County Master Gardeners.*

The normal last frost date in Skagit County is generally sometime between May 15th and May 30th. Using the list above and a last frost date of May 15th, you would start begonia seeds around February 22nd, dianthus seeds on March 7th, ageratum seeds on March 21st, aster seeds on April 4th, and cosmos seeds on April 18th.

Growing plants from seed can be highly rewarding with a little time and effort. It can be a wonderful pastime during the grey days of late winter and early spring.

Additional questions can be answered by your WSU Skagit County Master Gardeners at 360-428-4270, extension 0.

RESOURCES:

- *Sustainable Gardening*. EM 8742, October 1999.
- *Park's Success with Seeds*. George W. Park Seed Co., Inc. 1978.