FRUITS & VEGETABLES

Storing Vegetable and Flower Seeds no. 7.221

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Quick Facts...

Vegetable and flower seeds may be kept for one year without appreciable decrease in germination.

Storage may be extended to 10 or more years under proper conditions.

Seed moisture and storage temperature are the most important factors in determining how long seed can be stored.

The drier the seeds are, the longer they will store.

A garden's success depends in part on the quality of seeds planted. Ensure good quality seed by planting fresh seed from a reputable seed company. Often, there is seed left over after a crop is planted. If there is enough for the next year, save it.

Storing Seed

In Colorado, all vegetable and flower seeds will store on a shelf at room temperature for at least one year without significant loss of germination. If there is enough seed for several years, then take further steps to ensure viability.

A 10-year storage life can be achieved by drying seed to less than 8 percent moisture. To do so, dry seed at 100 degrees F for six hours. Obtain this temperature by spreading the seed out in direct sunlight. However, because sunlight is harsh and easily can exceed this temperature, drying in the shade is better.

Never use a microwave oven. You may use a conventional oven if you keep the door open and the seed is not heated to more than 100 degrees. Package the seed in moisture-proof containers and store it in a refrigerator or deep freezer. A moisture-proof container is one that stores seed safely while submerged in water. Use sealed cans or jars, rather than plastic bags.

Factors Affecting Seed Storage

Conditions essential to good seed storage are just the opposite of those required for good germination. Good germination occurs when water and oxygen are present at a favorable temperature. Good seed storage results when seeds are kept dry (below 8 percent moisture) and the temperature is kept low (below 40 degrees).

When seed moisture and storage temperature are low, the presence of oxygen has not been shown to be a factor in seed longevity. Germination is unaffected by storage in atmospheres of nitrogen, carbon dioxide, partial vacuum or air.

Relative humidity (RH) influences the moisture content of seed if it is not stored in moisture-proof containers. For example, at 15 percent RH, seed will dry down to 6 percent moisture and will store safely in this condition for several years. However, at 90 percent RH, seed will dry down to only 19 percent moisture and germination will be poor after one year.

Hard Seed

The drier the seeds, the longer they will store. There is a chance of producing what is known as "hard seed" if moisture is reduced below 8 percent. Hard seed resists germination under favorable conditions because it does not

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absorb enough water. When planted, the seed gradually absorbs water, germinates and produces seedlings over an extended period. A seed lot containing 50 percent hard seed is little better than a lot containing 50 percent dead seed, because neither produces a stand of seedlings when they should.

Beans and peas are particularly subject to this condition and therefore should not be dried as completely as other seed. If they have been overdried, they germinate better if exposed to a humid atmosphere for two weeks before planting.

To be in compliance with the Colorado Seed Law, packets of vegetable seed sold in Colorado must germinate at or above the germination percentage shown in Table 1. As yet, there are no standards for flower seeds under Colorado laws and, therefore, the only assurance of quality is the reputation of the seed company.

Table 1: Federal and Colorado minimum germination, seed count and relative longevity of selected vegetable seed.

Kind of seed	Minimum germination (percentage)	Average number of seed per: gram	ounce	Relative longevity (years)
Asparagus	60	50	1,400	3
Beans	70	4	100	3
Beets	65	70	2,000	4
Broccoli	75	290	8,100	3
Brussels sprouts	70	300	8,500	4
Cabbage	75	280	7,700	4
Cabbage, Chinese	75	250	7,000	3
Carrot	55	790	22,000	3
Cauliflower	75	310	8,600	4
Celeriac	55	1,800	50,000	3
Celery	55	2,700	76,000	3
Chard, Swiss	65	50	1,500	4
Chicory	65	710	20,000	4
Corn, sweet	75	5	140	2
Cucumber	80	40	1,100	5
Eggplant	60	260	7,200	4
Endive	70	610	17,000	5
Kale	75	360	10,000	4
Kohlrabi	75	330	9,200	3
Leek	60	350	9,900	2
Lettuce	80	930	26,000	1
Muskmelon	75	40	1,100	5
Okra	50	18	500	2
Onion	70	300	8,500	1
Parsley	60	640	18,000	1
Parsnip	60	240	6,800	1
Pea	80	7	200	3
Pepper	55	160	4,500	2
Pumpkin	75	7	200	4
Radish	75	110	3,100	4
Rutabaga	75	390	11,000	4
Salsify	75	70	2,000	1
Spinach	60	100	2,900	3
Spinach, New Zealand	40	20	430	3
Squash	75	10	300	4
Tomato	75	360	10,000	4
Turnip	80	500	14,000	4
Watermelon	70	10	300	4

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