Gertens®

Guide to Seeds

Everything you need to know for a successful garden!

Seed Dictionary

Common Terms & Definitions

The answers to most seed packet planting questions can be found right on the seed packet. Here are some common seed packet terms.

Seed Depth
How to plant the seed. In general, seeds should be planted at a depth of two times the width, or diameter, of the seed. The packet will list a depth measurement, i.e. 1/4th. Terms like *surface sow* or *press in* indicate seeds that need light to germinate.

Plant Space
This tells you the optimal distance plants should be from each other after thinning.

Row Space
This information applies especially to vegetables, and tells how far apart to create your planting rows.

Thin Space
The recommended spacing between plants after thinning.

Annual
A plant that completes it's life cycle within a single growing season. All roots stems and leaves of the plant die annually. Only the dormant seed bridges the gap between one generation and the next. Many annuals, like California poppy, seed freely and often reappear each season. Annuals tend to bloom throughout the season.

Perennial
Perennial plants live for more than two years. They return year after year and continue growing until they reach maturity, which varies by plant but averages three to five years, although hardy perennials like enchinea and butterfly flower can live for 15-20 years. They grow back each year from roots that go dormant in the soil in the winter. Flowers typically last for just a few weeks each season.

Biannual

Biannual Plants complete their life cycle over two growing seasons. The first season they grow only foliage. The second season they form flowers and produce seeds; then, the mother plant dies. Common biannual flowers include foxgloves and hollyhocks.

Annual/Perennial

Some plants that are perennials in their native region may be considered annuals in other regions. For example, snapdragon is a plant that may be a perennial in a warm climate where it can survive the winter but may be an annual in colder climates where it dies in the winter.

Matures in (days to maturity)

Maturity means the point in a plants growth where you can either see flowers or pick vegetables. It is measured in two ways:

1. If you start the seed indoors and transplant it into your garden, it's the number of days from when you transplant. This is also true for purchased plants.
2. If you sow directly in the garden, it's the number of days from when the seed germinates and a first plant emerges.

Note that this is a general guideline. Many factors, i.e. cold weather, will affect the number of days to maturity.

Determinate *(Brush varieties like Roma tomatoes and Blue Lake 274 beans)*

- Smaller plant with controlled growth
- Fruit ripens fairly early in the season
- Produces a lot of fruit at once; ideal for canning
- Plants usually die by midsummer, freeing space for other plants
- Requires little staking or caging

Indeterminate *(Pole varieties like Beefsteak tomatoes & Kentucky Wonder beans)*

- Large plants with sprawling growth
- Fruit continues to ripen early to late in the season
- Fruit continues to produce up until frost
- Plants require strong support
- May Work for large containers, but in-ground planting is better

When Do I Start?

Zone 4 Planting Guide

Zone 4 has a shorter growing season than most USDA garden zones in the United States. Choose vegetable varieties with faster maturing dates. **With a last frost date of April 30th and a first frost date around October 10th.** These dates will vary a week or two so it's important to watch the weather before planting. Annual minimum temperature for zone 4 is -20 degrees F.

Planting Month	Time Indoors	Flowers & Vegetables
Early February	14-15 Weeks	Geraniums, Pansies, Leeks, Onions
Mid-February	12-13 Weeks	Celery, Lobelia, Impatiens, Larkspur
Early March	10-11 Weeks	Broccoli, Cabbage, Dahlia, Snapdragons
Mid-March	9 Weeks	Peppers, Dianthus, Salvia, Eggplant
Early April	5-6 Weeks	Tomatoes, Aster, Calendula, Marigolds
Mid-April	3-4 Weeks	Cosmos, Peas, Zinnia, Sweet Potatoes

For more information visit out blog!

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Companion Planting

Guide to who grows better with who?

Companion planting is the practice of growing one plant to help another as part of a community. Fruits, vegetables and herbs are noticeably more resilient and productive when each member supports the next. This is natures way of minimizing pest damage, boosting soil fertility, reducing weed competition and, ultimately, increasing yields. Knowing which plants grow well together is helpful. Check out our guide below for some of our favorite garden companions!

Planting TOMATO?

Pair tomatoes with these herbs & veggies for richer flavor, stonger roots, less pests & healthier soil overall!

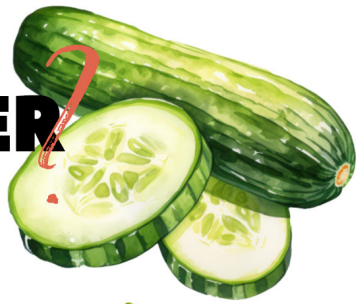
BASIL ONION SPINACH GARLIC CARROT

Planting LETTUCE?

Deter aphids, ants and beetles by **planting mint with lettuce!** Place potted mint nearby - not in the garden- it grows aggressively!

PEAS BEETS ASPARAGUS DILL MINT

Planting CUCUMBER?



Dill attracts beneficial ladybugs while corn offers natural support for fast-climbing cucumber plants!

CELERY DILL LETTUCE RADISHES CORN

Planting SPINACH?

Peas and beans provide great shade for delicate spinach, while cilantro, oregano, & rosemary repel insects.

BEANS CILANTRO PEAS OREGANO EGGPLANT

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Seed Preparation

Scarify, Soak or Stratify?

Seeds have adapted to germinate according to their traditional natural environment. Some of them, like perennials or those with thick coats, germinate best with a little help that replicates their preferred conditions.

- Scarify (scratch/nick the seed coating) if they are large or have hard thick coatings
- Soak overnight if they are hard and wrinkly
- Stratify (give cold treatment) if they are perennials that normally overwinter, like poppies or echinaea

How to Scarify Seeds

The thick, hard outer coat of some seeds, like morning glory, creates a protective barrier to moisture that would cause them to germinate before conditions are ideal. The seed coat breaks down in nature due to freezing temperatures, microbial activity, or passing through the digestive tract of animals. You can replicate this by scarifying, or scarring, the seed before you plant it. To do this, scratch or nick the seed coat with a knife or nail clipper, or rub the seeds across sandpaper or a file.

How to Soak Seeds

Place seeds in lukewarm water for 24 hours prior to sowing. This process is perfect for peas and sweet peas, as well as some scarified seeds.

How to Stratify Seeds

Stratification replicated natures freeze-thaw cycle that conditions the seeds for germination. This process will take approximately eight weeks. Lightly moisten a mixture of pearlite, vermiculite, and coco coir. The mixture should barely hold together when you squeeze it; if water squeezes out it is too wet. Fill about 1/4th of a plastic sandwich bag with the mixture, put the seeds inside, and place the bag in the refrigerator, not the freezer.

Important: do not let the starting medium dry out. Check periodically to be sure it is still slightly damp.

In two weeks, remove the bag from the refrigerator and place in a cool location for a week. Complete the process twice, ending outside the fridge prior to planting.

Seed Viability

How long can seeds be used?

PLANT	AVERAGE SHELF LIFE*
Bush and pole bean	2 years
Beet	2 years
Broccoli	3-5 years
Brussels sprouts	3-5 years
Cabbage	3-5 years
Carrot	3 years
Cauliflower	3-5 years
Collard, Kale	3-5 years
Sweet Corn	1 year
Cucumber	3 years
Leek, Onion	2-3 years
Lettuce	3 years
Melon	3 years
Parsley	2 years
Parsnip	1 year
Pea	2 years
Pepper (all kinds)	2 years
Radish	4 years
Rutabaga	3 years
Spinach	1 season
Squash (all kinds)	3-4 years
Swiss Chard	2 years
Tomato (all kinds)	3 years
Turnip	4 years
Flower seed - annual	1-3 years
Flower seed - perennial	2-4 years

Storage

Ideally, seeds like to be stored somewhere cool and dry. Best: 50 degrees F at 50% humidity. Use and airtight container, such as a jar or envelope, in a dark, cool spot where the seeds won't get any light or moisture. One way to keep them dry is to place them in jars with a desiccant like powdered milk or rice at the bottom.

What Do They Like?

You can often tell whether the seeds are still good by their appearance. If the seeds usually are round and plump, they probably won't germinate well if they are wrinkled or pocked.

When in Doubt... Test

Give your seeds a germination test. Select some randomly picked seeds, and spread them across several layers of pre-moistened paper towels. Keep them in a plastic bag or container somewhere warm. In a couple of days, check seeds to see if they germinated. Repeat every day for a week or so.

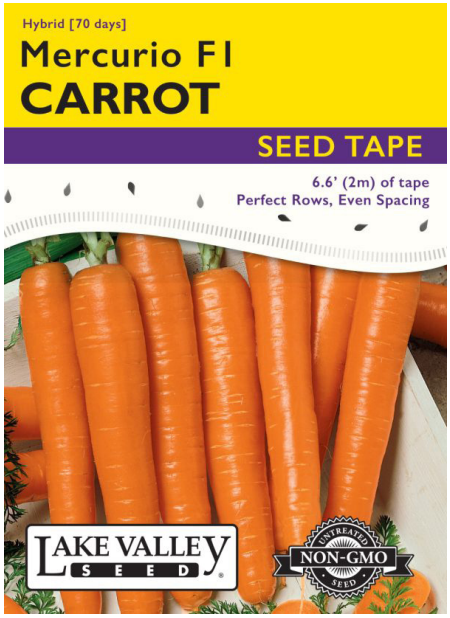
*Minimum seed life with no special care taken. If kept dry and cool, many will last longer than the times indicated, especially beans, corn, and peas.

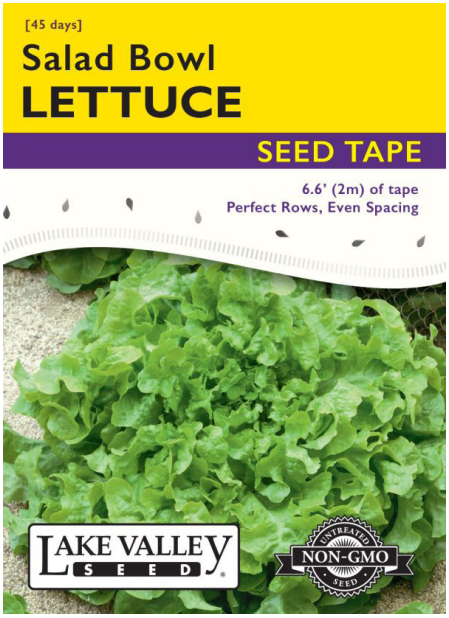
Seed Tape

What is it & how does it work?

Seed tapes are a pre-sown product of single or multiple species of seeds that are already spaced between tissue layers at the correct distance for growing. They come in various lengths, single track or multiple tracks, both available with the option of one seed variety or a multiple of seeds – suitable for salad, mixed vegetable, and flower collections.

- Even seed spacing prevents over-sowing, especially with crops like lettuce, greens, carrots, wildflowers, etc. This also eliminates the need for thinning the young seedlings.
- The lightweight tape prevents birds from eating freshly sown seeds
- The tape, when covered with additional soil, won't wash away in a sudden spring downpour, ruining evenly spaced and sown rows.
- Almost all seed tapes are biodegradable to protect wildlife and have no damaging impact on garden ecosystems.
- For gardeners experiencing arthritis or other mobility issues, a seed tape is a quick and easy way to sow tiny seeds.





What Went Wrong?

Why didn't my seeds germinate?

The seed was old
Check the sow by date on the packet. Seed that is beyond this date will often still germinate but the success rate is likely to be reduced. Some seeds lose their viability rapidly so it is worth buying new packets each year to avoid a disappointing germination rate.

It was too hot / too cold
Indoors: Invest in a soil thermometer. Most species can be sown successfully indoors at temperatures between 60–75 degrees F, which are easily achieved using a heat mat. However, extremes of heat or cold may prevent seeds from germinating, so it is well worth monitoring the soil temperature. Once seeds germinate, you can move your seed trays to a slightly cooler position.
Outdoors: Keep an eye on the weather and avoid sowing if the soil is cold and wet, as this will cause the seed to rot. Seed packets usually advise when to sow based on last spring frost or first fall frost dates for your area.

The soil was too wet / too dry
Indoors: Seeds need moisture to germinate, but if the soil is too wet then the seeds are likely to rot. Ensure that seeds are kept evenly moist by thoroughly wetting and draining the seed starting medium before you begin sowing. After sowing you can cover the seed tray with a sheet of glass or clear plastic to retain moisture — the medium should remain damp for several days or more. If the soil surface begins to dry out then simply stand the seed tray in water until the surface becomes moist — but be sure to let it drain again. Or, lightly spray the surface with water. Remove the glass or plastic as soon as the seeds begin to germinate to prevent the seedlings from rotting.
Outdoors: Wet, poorly drained soils and dry, sandy soils can be difficult environments for seed germination. Both can be improved by adding plenty of organic matter such as well rotted manure or homemade compost. On wet soils this will improve drainage and air circulation, while on dry soils organic matter acts as a sponge, holding water in the soil for longer.

The seeds were sown at the wrong depth

Some seeds need light to germinate, but many don't. The amount of light that the seed receives will be determined by how deeply it is sown. Check the seed packet before you bury your seeds beneath the soil, as they may only need a light sprinkling of soil or to be lightly pressed into the surface.

Seed size often gives a good indicator of how deep to sow them. Very small seeds such as lettuce only need a very light covering of soil, while larger seeds such as sunflowers and beans will need to be sown 1/2" to 1" below the soil surface. As a rule of thumb, most seeds can be planted at a depth of 3 to 4 times their own width.

The seeds needed special treatment

Did the seed packet mention pre-chilling, chipping, scarifying or soaking? Some treatments may sound a bit strange but they are essential to help the seed germinate.

The seeds were eaten

Outdoor sowings of beans, peas, sunflowers and other large seed are often at risk from attack from the moment that you have sown them. Mice and birds love to dig them up for an easy snack. Protect your seed with covers, chicken wire or netting to give them time to germinate safely.

The seedlings were thinned too early

As a rule of thumb most seedlings can be thinned out when the first true adult leaves show (i.e. the second set of leaves after the initial seed leaves or cotyledons). But before you begin it's always worth checking that they have sufficient roots to cope with the transplant process. Simply lift one or two seedlings out of the tray and take a look. If the roots are still very tiny then postpone thinning for a few more days, or until the roots have made sufficient growth. It won't do them any harm and that extra time will make them more capable of coping with the transplant.

The seedlings were thinned too late

It's easy to sow too many seeds and then find that you don't have time to thin them out. Delays in thinning, especially for fast growers like tomatoes, can lead to competition for light and nutrients. If left for too long, your seedlings will start to look sickly as the nutrients in the soil are depleted and this can cause a significant check in their growth even after thinning them.

The seedlings were damaged during thinning

Whenever possible, use scissors to snip off the unwanted seedlings rather than pull them by the roots. Pulling them risks disturbing the roots of the plants you wish to keep. Your delicate seedlings can be easily bruised and damaged, so you should never handle seedlings by the root or stem.

The seedlings just died

Did your seedlings mysteriously keel over, or rot away at the base of the stem? These symptoms are signs of damping off, caused by a number of fungal diseases, and often occur if the soil is persistently wet. Take the following steps to reduce the risk of damping off.

- Use fresh starting medium instead a half used bag from last season.
- Always wash, dry, and disinfect pots and seed trays before re-using them.
- Don't over water. Let the planting medium dry out slightly between watering to keep fungal spread at bay.
- Water with clean tap water instead of using rain water, which might contain microorganisms.
- Keep seedlings well ventilated to ensure good air circulation.

The seedlings are tall and spindly

Your seedlings will naturally grow towards the light, but when light levels are poor this can cause the growth to become tall and spindly. Warm temperatures will encourage leggy growth too. If you are growing plants on your windowsill, this can be a real problem, resulting in thin spindly stems that flop over. Try to use the brightest windowsill possible (although it's best to avoid direct strong sunlight as this may scorch your plants.)

The plants all died when they were moved outdoors

Always check the weather before you move your plants outside. Cold temperatures, scorching heat, wind, and heavy rain can all damage or even kill your young plants. Even if the weather conditions are favorable, plants that have been grown indoors will need to be "hardened off" before you can plant them outside. This allows them to acclimatize to the temperature, air movement, and weather conditions before you plant them. Place them outdoors in a sheltered position during the daytime and bring them back in at night. After 7 to 10 days, they should be ready to plant.