Vegetable gardener

Seed Viability Test

Greg Holdsworth, contributor

Here's a simple test to see if your vegetable seeds are viable and ready to plant. The required items are most likely things you already have in your home - spray bottle w/water, paper towel, plastic bag, and of course the seeds you wish to test.

You simply put 10 seeds on the paper towel, lightly spray them with water, then cover it with either a second paper towel or fold over the first sheet in half. Place the moist towel in the plastic bag, seal it, then put it in a dark location at room temperature.

You'll wait about a week to 10 days to see if any of the seeds appear to have sprouted in the bag. Only open the bag to check to see if it is still moist, every 2-3 days perhaps.

After that, take the paper towel out of the bag, gently open it, and see how many seeds sprouted. We did ten seeds because it represents percentages to 100. If only 3-4 seeds (30-40%) sprout for example, then you will have to either plant more or not use them at all. If at least 6-7 seeds (60-70%) sprout, they are probably still good.

The only catch here is that you have to have enough seeds to test. Better safe than sorry, right?

Have fun!

For more on articles and videos on starting seeds, see All About Starting Seeds.

Starting Seeds Indoors

The Basics .....

SOIL: Start with high quality seed starting mixes. Do not use outside soil. Inexpensive poor quality soil will only cause problems. You can purchase these mixes or make your own.

(Recipes on back)

WATER: Keep seedlings moist but not soggy. If they completely dry out even one time, they will die. If they get soggy, they can develop a fungus. To retain moisture until seeds germinate, you can cover in a clear lid or wrap in clear plastic wrap. Remove cover immediately when you see the first seedling.

CONTAINERS: You can purchase seed staring trays or recycle almost any container. If you reuse them from year to year, soak them in a 1:9 bleach/water solution to kill any pathogens. Containers will need drainage holes. If you set them in a tray, you can add water to the tray as needed to keep containers moist.

WARMTH: Many seeds will germinate in normal household temperatures. Some seeds need temperatures above70 degrees to germinate. You can place your trays near a heat vent, radiator or other gentle heat source. You can buy specially designed heat mays or recycle rope lights.

LIGHT: Insufficient light is the biggest mistake people make when starting seeds indoors. Without enough light, seedlings become long, tall and skinny. Seedlings require at least 14-16 hours of light a day. Lights should be placed 1-2 inches above the seedlings and adjusted with growth. You can purchase a grow light system or build a less expensive one yourself. The ideal light will have 4 fluorescent bulbs, 2 warm and 2 cool. However, any bright light will do and the size really depends on how many seedlings you are starting.

Seed Starting Mix

4 gallons peat
1 & ½ quarts perlite*
1 & ½ gallons aged compost
¼ cup dolomite limestone

Yields about 5 gallons

*Use caution with perlite as it is sharp, fast-draining and may make it difficult to separate roots when transplanting.

Soilless Planting Mix

4 parts vermiculite
4 parts peat moss or milled sphagnum moss

Fungicide for Damping Off Disease

4 chamomile tea bags
1 quart boiling water

Let cool and use to water seedling trays.

Resources:

www.vegetablegardener.com/item/10376/diy-pvc-grow-light-stand

www.vegetablegardener.com/item/10502/seed-viability-test

www.botanicalinterests.com

Top 10 Seed Starting Tips

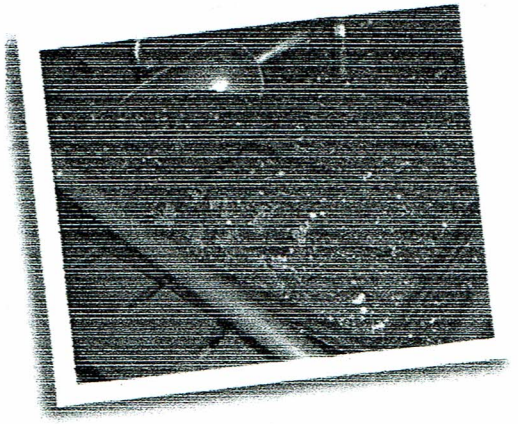
Simple Steps to Getting a Good Start

You can always be sure that you are getting the highest quality when you choose Botanical Interests seeds. All seed lots are tested at an independent laboratory for viability before we accept them for packing, and we only accept the best! Here are some tips for giving your seeds a successful start:

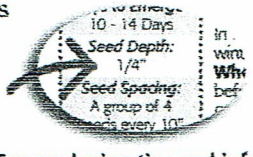
INDOORS:

1. Use clean containers.
If you are re-using containers, sterilize first by soaking them in a 1:9 bleach/water solution.

2. Use a high quality seed starting mix.
A good mix will be finely milled. It will provide good drainage, but also retain moisture well. Do not use potting soils for starting seeds. They are excellent for transplanting, but are often too chunky and contain added fertilizers that are too rich for seed germination. Mixes that contain perlite (a white rock-like volcanic glass product) should also be avoided. It's too sharp and fast draining, and can make it harder to pull roots apart when transplanting. Thoroughly moisten your seed starting mix before sowing.



3. Sow at the recommended depth on back of packet.
Some seeds require light to germinate, and some seeds require darkness. Sowing at the recommended depth will increase chances of germination.



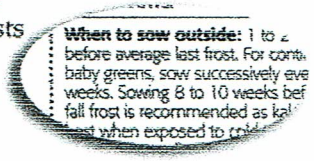
4. Maintain adequate moisture.
Seedlings must be kept moist but not soggy. Check daily to see if they need water. A clear plastic cover or a plastic bag can help hold in moisture. Remove the cover as soon as seedlings emerge.

5. Use fluorescent lights.
Place lights 1"-2" above seedlings and leave them on for 16 plus hours per day. (Your local hardware store will have an inexpensive timer you can use to turn lights on/off automatically.) The ideal lights have both a cool and warm bulb for a full spectrum of light, but any bright fluorescent will do for seed starting. Avoid starting seeds on windowsills. Your brightest window has only a fraction of the light needed for seedlings to thrive. Insufficient light results in spindly, weak plants.

6. Harden off.
After the plants have their first true leaves, and all danger of frost has passed, you can move them outside. Plants started indoors are "soft," meaning they are fragile and not used to the intensity of outdoor sunlight and wind. They will need to be "hardened off" (transitioned slowly). Place them in a sheltered area with shade, then over the course of a week, gradually increase their exposure to direct sunlight. Check daily to see if they need water. After a week, check your weather forecast. If an unexpected freeze is predicted, they may need to be protected with a row cover or temporarily brought back inside. If the temperature is going to remain above freezing, they can be transplanted into the ground or a larger container.

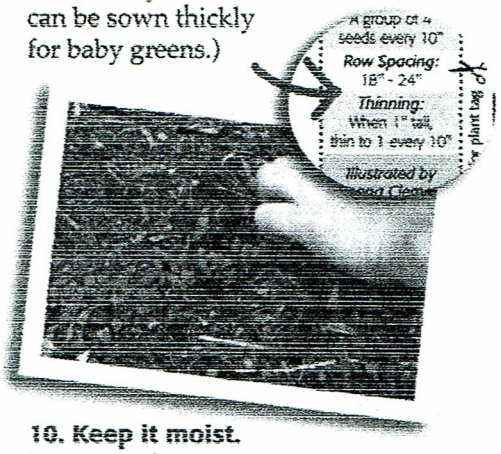
OUTDOORS:

7. Sow at the recommended time on the back of the packet.
Know your average last frost date. In spring, sowing outdoors at the correct time is important to prevent frost damage and to take advantage of an early start with cool season varieties that can handle the last few frosts (like broccoli, carrots, lettuce, peas, etc.).

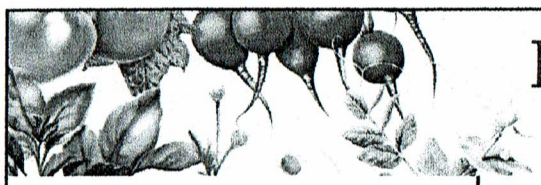


8. Sow in average garden soil or soil that has been amended with only well-aged compost.
Never sow seed directly in beds that have added artificial fertilizer or fresh manure that hasn't been aged at least six months, because high nitrogen content can inhibit germination and "burn" young seedlings.

9. Follow spacing and thinning recommendations on the back of the packet.
Seedlings that are too close together will compete for nutrients and water, resulting in weak growth. (There are some exceptions. Lettuce or mesclun can be sown thickly for baby greens.)



10. Keep it moist.
Never let the soil dry out! Young seedlings occupy just the top ¼" to ½" of soil. If this thin layer gets dry, they can die. A newly sown area may require water once or twice a day to keep the soil moist.



Indoor Spring Sowing Guide

VEGETABLES & HERBS

12-16 weeks
before average last spring frost

Celery

12 weeks
before average last spring frost

Artichokes

10-12 weeks
before average last spring frost

Endive
Escarole

8-12 weeks
before average last spring frost

Eggplant
Onions Bunching/Scallion Italian Red of Florence
Onion Flat of Italy (Intermediate Day variety for middle states)
Onion Ringmaster (Long Day variety for northern states)
Onion Yellow Granex PRR (Short Day variety for southern states)

10 weeks
before average last spring frost

Kale

8-10 weeks
before average last spring frost

Chamomile
Lavender (English Tall, Hidcote Dwarf)
Leeks
Lovage
Peppers
Rosemary

8 weeks
before average last spring frost

Parsley
Thyme

6-8 weeks
before average last spring frost

Anise
Basil
Clary Sage
Feverfew
Garlic Chives
Marjoram
Oregano
Savory
Tomatoes

6 weeks
before average last spring frost

Catnip
Chives
Collards
Echinacea
Kale, Chinese
Kohlrabi
Lemon Balm
Lettuce
Mint
Radicchio
Watercress

* Recommended to start outdoors directly in ground when possible. Transplant carefully if starting indoors.

BOLD = Online Only variety

4-6 weeks
before average last spring frost

Arugula
Bitter Melon
Broccoli
Broccoli Raab
Brussels Sprouts
Cabbage
Cabbage Chinese
Cucumbers
Mache
Melons
Mustard
Okra
Tomatillo
Watermelons

4 weeks
before average last spring frost

Fennel
Sage
Shiso
Sorrel

3-4 weeks
before average last spring frost

Cress (Garden)
Pumpkins
Radish Rat Tail
Spinach New Zealand
Squash – all Summer varieties
Squash – all Winter varieties

1-2 weeks
before average last spring frost

Quinoa Brightest Brilliant Rainbow

The following varieties do not transplant well. RECOMMENDED to start outdoors directly in the ground:

Amaranth Edible Red Leaf
Beans
Beets
Bok Choy
Borage
Carrots
Chervil
Cilantro
Corn
Dill
Edamame
Fenugreek (for plants)
Lettuce Mesclun Blends
Mitsuba (Japanese Wild Parsley)
Onions Bunching/Scallion (Evergreen, Tokyo Long White, White Lisbon)
Parsnip
Peas
Radishes
Spinach
Swiss Chard
Turnips

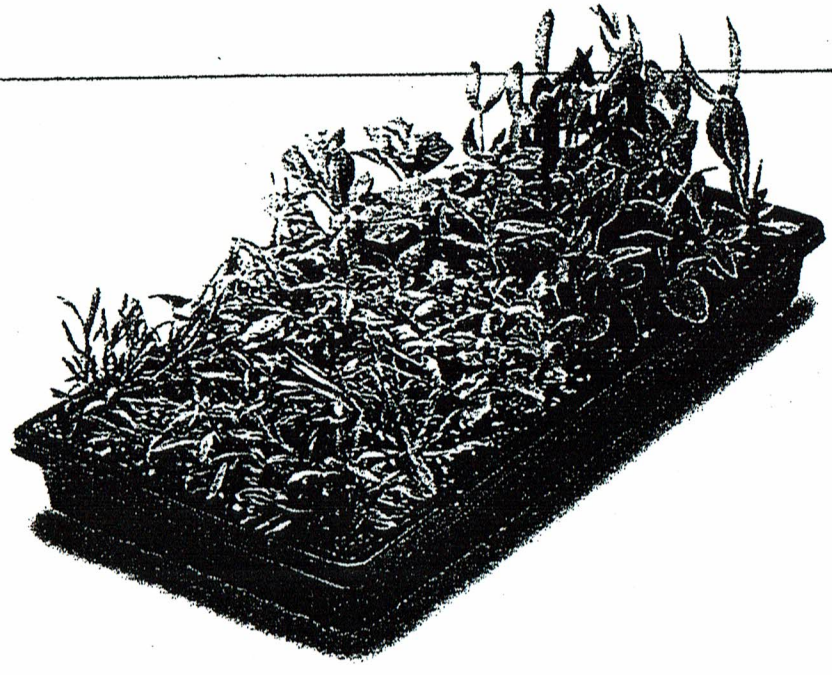
The following varieties can be grown indoors in a sunny window at any time of year

Cat Grass
Fenugreek (for sprouts)
Micro Greens
Sprouts – Afalfa, Broccoli, Mung Bean
Wheatgrass

Hardening off

Sun schedule

Day	Hrs.	To harden-off
1	4	seedlings grown
2	4	indoors under
3	4.5	lights, take
4	4.5	them outside a
5	5	little longer
6	5	each day,
7	5.5	following this
8	5.5	schedule, which
9	6	starts with four
10	6.5	hours of sun
11	7	and ends two
12	7.5	weeks later
13	8	with a full day.



▲ **Big but tender** from growing under lights, these seedlings need hardening-off before they'll endure full sun. Take them outside a little longer each day, by the schedule at left.

I grow seedlings under a shoplight, the kind with a reflector and two 4 ft.-long fluorescent tubes. Fluorscent light is weak compared to sunlight, so plug the shoplight into a timer and give the seedlings 18 hours of light and 6 hours of darkness every day. Also, keep the tubes within 2 in. of the plants so the leaves get as much light as possible. I've made a lightstand that lets me hang shoplights from their chains and adjust their height (see below).

When spring arrives, the seedlings are too tender to go straight into the garden. They need hardening-off—a little more sun every day for two weeks (see the table at left). Otherwise, their leaves may scald from too much sun or wind. When you harden-off your seedlings, watch the pots closely. Outdoors, potting mix dries out much faster than indoors.