



Community Horticulture Fact Sheet #9

Vegetable Seed Starting and Spacing

Planting Seeds Outdoors

If you choose to direct seed in the garden, you must provide the seeds with the conditions they need to germinate and grow well. Here are some tips:

- Prepare a good seedbed by digging and breaking up soil clods. Smaller seeds (carrots, lettuce, radishes) need a "finer" soil to sprout and push roots into. Remove rocks, sticks and plant debris. Larger seeds (beans, corn, peas) can take rougher soil.
- Follow the directions on the seed packet. They will tell you when to sow and at what depth, what the soil temperature should be, how much sunlight is needed, how long it will take for the seeds to germinate, and how to thin the seedlings. See below for information on when to plant some crops. Soaking seeds overnight will help them come up faster.
- Keep seeds moist. Use a spray attachment on your hose to water fine seeds. Don't aim hard spray directly at the bed or the soil will wash away. Move the spray around to gradually soak the entire bed with several passes, and do not let water puddle.
- Sow a little thicker than desired to ensure a good stand even if germination is not optimal. Later, thin the seedlings to give them plenty of room to develop.

Here in the Puget Sound area, we have a long growing season. However, it is a relatively cool season, and this imposes limitations on what type of vegetables can be grown successfully here. Most seed companies test varieties where summers are much warmer, and the number of days to maturity is based on their weather conditions, not ours. If you use seeds from such companies, you will need to increase the number of days to maturity by 30% to 40% for it to be accurate. Or, you can order from a company that specializes in seeds that do well in our maritime climate, such as Territorial Seed Company. Visit their Web site, www.territorial-seed.com or call 541-942-9547. Ed Hume Seeds is another company selling seeds specifically for our growing conditions. Go to www.humeseeds.com. or call 253-435-4414.

Intensive Plant Spacing

Intensive gardening is possible where the soil is deeply dug and well amended. In such soil, roots can go down for water and nutrients instead of out, and plants can be spaced much more closely. For information about soil improvement, see **Fact Sheet #6 Soil Testing and Soil Improvement**. To learn how to double dig and make raised beds, see **Fact Sheet #5 Raised Bed Gardening**. Think about planting your bed in blocks not rows.

When to Plant Seeds Outdoors

Asparagus – February-March * **Green Beans, bush** – May-July * **Green Beans, pole** – May-June

Beets – March-August * **Carrots** – April-July * **Corn** – May-June * **Cucumber** – May-June

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Garlic – October-November, February * **Mustard** – February-September

Onions, green – January-August * **Parsley** – February-June, September * **Parsnips** – April-May

Peas, bush and pole – February-July * **Pumpkin** – May-June * **Radish** – January-September

Daikon – January-July * **Spinach** – February-May, July-September

Squash, summer and winter – May-June * **Swiss Chard** – March-September

Turnips – March-August

Using Transplants

Two secrets of productive gardening are:

- Always have plenty of young seedlings around to fill in empty spots in your garden (for example, where carrots did not come up well in part of a bed, or where slugs ate half your spinach seedlings).
- Grow early and late (fall-winter) crops using varieties selected for these seasons.

The key to putting both of these secrets to work for you is to start as many crops as possible indoors in containers (or outside in a cold frame) to be transplanted into the garden when you need them. Using transplants gives you a two-week to two-month head start in the spring plus a big jump on succeeding crops, since you always have established plants to put into the garden instead of just seeds. Also, you can grow the crops and varieties you like, including over-winter crops.

Where to Start Seeds

Warmth and moisture are more important than direct light for sprouting seeds. Once seedlings are up, though, they should be moved to a place that gets at least six hours of direct sunlight a day. A large south window should be fine, or plants can be moved to a cold frame, if the weather is not too cold. If plants lean dramatically toward the window and get spindly, fluorescent lights may be the answer. A four-foot long, two-bulb fixture is adequate for two full nursery flats of plants. 40-watt cool white bulbs are as good as or better than gro-light bulbs, and they cost much less. They should be 2 to 3 inches away from the tops of the plants and be kept on 16 to 18 hours a day.

Ideal temperatures for germinating most seeds are 65 to 75 degrees in the daytime and around 10 degrees cooler at night. If the spot you have picked is cold, heating cables or pads can be placed under containers or in flats to maintain the ideal temperature.

Soil and Containers

Do not start seeds in garden “dirt”. The best recommendation for a seed-starting mix is a 1:1 combination of coarse sand and sphagnum peat. If you cannot get “coarse” sand, which feels really gritty, two parts of finer sand can be used with one part peat. Add about 1/4 cup of 5:10:10 fertilizer, or about 1/2 cup of complete organic fertilizer and 1/8-cup of dolomite lime to each 2 to 3 gallons of mix.

Anything that will hold soil and water and has holes in the bottom or lower sides to let water out is suitable for starting seeds. Paper cups, plastic pots, and cut-off milk cartons are all good.

Shallow 3- to 4-inch-deep containers are best for easy transplanting. Shallower ones don’t allow enough rooting depth, and deeper ones make transplanting difficult. Plastic nursery flats are good

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for holding or moving many smaller containers, or for growing larger crops .Be sure to get flats without holes if you need to catch drainage water and double up the flats for strength.

Sowing Seeds and Watering

Plant seeds 2 to 3 times as deep as they are wide. Most of the vegetable seeds you will start inside should be planted 1/8 to ¼ inch deep. Sow seeds in rows 1 to 2 inches apart made with a knife or finger. Smooth the soil after the seeds are in place. Another method is to scatter seeds evenly over the surface and then sift or scatter a 1/8-inch layer of sand/peat mix over them.

Seeds must be kept moist to sprout, but the surface of the soil should not be allowed to remain saturated or fungal diseases may be a problem. To avoid uncovering the seeds, water gently using a fine-holed watering can or a mister. Make sure that the water goes all the way through the soil. Don't wet only the surface. To retain moisture you can cover seed flats with glass or plastic. Make sure to keep the covering supported above the soil and seedlings. Or, you can place soil-filled containers, with holes in the sides near the bottom, into pans containing an inch or so of water. Water will move up through the soil.

Thinning and Transplanting

Once they are have sprouted, seedlings need room to grow. Most plants should be thinned to 1 or 1 ½ inches apart as soon as they sprout and then planted out when they grow crowded at this spacing. (Onions and leeks may be grown closer together.) Seedlings that are going to be “grown-on” in containers, such as tomatoes, peppers, broccoli and cabbage, should be transplanted when they have one true leaf (not seed leaves). Use a soil mix with fertilizer and compost, if possible, for transplants. Always handle young seedlings by the seed leaves only! Transplant them buried up to the seed leaves, 2-3 inches apart in flats or in individual 3-4 inch pots. Cole crops (cabbage, broccoli) should be put out in the garden with 3 to 5 true leaves. Tomatoes, peppers and celery should not go out until night temperatures stay about 55°F. You may have to transplant these crops a second time into larger containers before putting them in the ground, or plant them with some protection from the cold.