



Thanksgiving Point Office
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TIMING

Timing is critical for growing good transplants. Check the included table that follows for the number of weeks that it takes to produce transplants. Use that number to "count back" and establish a seeding date. For example, frost tolerant plants may be set into the garden March 15-30 along the Wasatch front. Susceptible plants shouldn't be planted until May. Use frost dates for your area and seed at the proper time.

PLANTING MIX

The right soil or soilless mix to start seeds is critical for growing quality transplants. The best soil for starting seeds is loose, well drained, fine-textured, and low in nutrients. To prepare a soil having these properties, blend equal parts sand, vermiculite or perlite, and peat moss. For small amounts purchase a ready-made soilless mix suitable for starting seeds.

Homemade mixes that contain garden soil must be sterilized to prevent seedling damping-off caused by fungal diseases. Moisten the mix so it is suitable for seed germination. Place in a shallow pan and bake at 175°F for 30-45 minutes. Turn off heat and wait until oven cools to remove soil. This produces odors and is often more difficult than buying a mix.

PREPARING TO PLANT

Fill container with moistened soil mix. A 4-inch flower pot may be planted with 18 to 20 seeds. Cover large seeds with 1/4 inch of planting medium. Press them into the germination mix. After seeding, place containers in a shallow pan of water to soak the mix completely. Label all containers.

Place a sheet of polyethylene plastic over the seeded containers. Set them where they can be kept between 60° and 70°F unless otherwise specified. The containers need no further water until after the seeds have germinated. Never put plastic covered containers in direct sunlight. Heat build-up under the plastic could kill emerging seedlings.

Peat pots or Jiffy 7's are useful for cucumbers,

muskmelons, and watermelons. Those plants transplant poorly if roots are damaged. Soak the Jiffy 7's in warm water so they swell to full size. Plant two or three seeds in each pellet and cover with plastic as above.

RAISING SEEDLINGS

As soon as the seeds germinate, remove the plastic sheeting and place the seedlings in the light.

Many gardeners supply light by placing the containers on a window sill. This is usually unsatisfactory. Light on a window sill comes from only one direction, and the period of strong daylight varies from day to day. In addition the air surrounding plants on a window sill is too dry and the temperature is too high.

For best results grow seedlings under closely controlled lighting conditions. A cold frame is sufficient for many annuals. Indoors, fluorescent light on a timer placed right above seedlings is adequate. See chart for number of hours required.

After initial germination, expose seedlings to lower temperatures (55°F at night and 65-68°F days) for husky development. Spindly plants are caused by too little light, high temperatures, and lack of fertility.

HARDENING OFF

About 10 days before transplanting in the garden, gradually expose plants to cooler temperatures and slightly less water. Protect the plants from freezing and wind.

A stocky transplant with dark green color should be the final product. The day before transplanting, water with a complete soluble fertilizer. When plants are set in the garden, water with the same soluble fertilizer mix.

WATERING AND FERTILIZING

After the plastic is removed from the container, the new plants must be watered frequently and they must be fertilized. You can do both of these jobs at one time by using a solution made by mixing 1 tablespoon of soluble fertilizer in 1 gallon of water. When you use this solution, moisten the soil thoroughly. Be careful not to wash out the

seedlings when you water them. To avoid this, use a hand mister or pump aerosol (available from garden stores) to apply the solution as a fine mist.

If you do not have a mister, place the solution in a **TRANSPLANTING**

When seedlings develop two true leaves, thin those which are in individual pots to one seedling per pot. Transplant those in flats to cellpacks or other flats to provide more space for them to grow.

Using a knife or spatula, dig deeply under the seedlings in the flats and lift out a group of the plants all at once. Let the group of seedlings fall apart and pick out individual plants from the group. Handle the seedlings by the leaves; don't pinch the stem.

Set the seedling in new flats that contain a similar soil mixture. Space the seedlings about one and one-half inches apart in the flats. Continue watering and fertilizing the plants until time for setting them out.

DAMPING OFF

Damping-off causes seeds to rot and seedlings to collapse and die. The disease is carried in soil and on planting containers and tools. Soil moisture and temperatures necessary for germination of seeds also are ideal for development of damping-off.

Once the disease appears in a seeding flat, it travels quickly through the flat and kills all the seedlings. It can be prevented before planting by treating the seed with a fungicide and sterilizing the soil and containers.

Treat seeds with captan. Tear off the corner of the seed packet and, through the hole in the packet, insert about as much fungicide as will stay on the flat end of a toothpick. Close the hole by folding over the corner of the packet, then shake the seeds thoroughly to coat them with the fungicide dust. Be sure to follow the label on the fungicide carefully. Use a pasteurized mix or a soilless mix for starting all seeds.

container and place the pots or flats in the solution. This waters the plants from the bottom. Remove pots or flats from the solution as soon as soil is thoroughly moist and allow excess water to drain away.

If you recycle flats or pots for soil containers, clean them well. Soak pots in water and scrub them well to remove the fertilizer crust. Sterilize them by soaking in a solution of 1 part chlorine bleach to 10 parts water. Allow the containers to dry thoroughly before filling them with soil.

If, despite precautions, damping-off appears in your seedlings, discard the containers and soil and start over.

USING THE SEED GERMINATION TABLE

Light requirements for seeds varies. Some seeds require light to germinate while others require total darkness. Those seeds needing a light requirement to germinate can be sown directly on top of the soil and kept moist. Those that do not require light are covered with soil so that light does not penetrate. Temperatures also vary for good germination.

The following germination groups are based on the seeds= environmental requirement for maximum germination. This does not mean that seeds will not germinate under different conditions from those indicated but rather germination is best under these conditions.

The number of days to germinate indicates the approximate number of days needed for proper germination. Time may be lengthened or shortened depending on watering practices and soil-air temperatures.

Total crop time indicates the number of weeks needed to obtain a plant suitable for transplanting into the home grounds when grown at 60°F.

General comments are included to give you the best possible transplants for your home garden.

Annual Flowers and Vegetables	Germination Requirements	# Days to Germination	Total Crop Time (weeks at 60°F)	Comments
Ageratum	VI	5-7	10-11	Freezes at low temperature, 18-20 hours of daylight
Alyssum	I	5-7	7	Direct seeding can be used, 18-20 hours of daylight
Aster	I	7-10	7	18-20 hours of day light
Begonia	V	7-14	15	18-20 hours of day light

Annual Flowers and Vegetables	Germination Requirements	# Days to Germination	Total Crop Time (weeks at 60°F)	Comments
Calendula	VIII	7-10	7	18-20 hours of day light
Celosia	III	7-10	9	Grow slightly dry; 18-20 hours of day light
Chrysanthemum	III	10-14	7	18-20 hours of day light
Coleus	VII	7-10	8	Damping off a problem; 18-20 hours of day light
Dahlia	I	5-7	8	18 hours of daylight each day at 65°F.
Dianthus	I	5-7	10	Keep at cooler temperatures; 18-20 hours of day light
Dusty Miller (Centaurea)	VIII	7-10	12	Damping off a problem; 18-20 hours of day light
Gazania	II	7-14	9	18-20 hours of day light
Geraniums	III	15-18	15-18	Transplant small; 18-20 hours of day light
Impatiens	VI	7-10	8	Direct sunlight inhibits germination
Larkspur	IX	15-21	16-18	18-20 hours of day light
Lobelia	III	5-10	9	Transplant in clumps; 18-20 hours of day light
Marigold French African	I	3-5	10 6	Grow dry to prevent stretch; 18 hours of daylight per day at 65°F.
Nicotiana	VII	15-20	13	18-20 hours of day light
Nierembergia	III	10-14	14-15	18-20 hours of day light
Pansy	IX	7-10	13	Can be treated as biennial and seeded outside in August; use a mulch; 18-20 hours of day light
Petunia	VI	7-10	10	Will not bloom at less than 9 hours of daylight; give 10-12 hours of daylight per day
Phlox	VIII	8-10	9	Transplant when small; 10-12 of day light per day
Portulaca	IV	5-7	13	Grow dry; direct seed into flats; 10-12 hours of daylight per day
Salvia	VI	7-10	9	Transplant early; 18-20 hours of day light
Snapdragons	VII	7-10	8	Keep cool after transplanting; give 10-12 hours of daylight per day
Verbena	VIII	7-10	10	Damping off a problem; 18-20 hours of day light
Zinnia	III	3-5	8	18 hours of daylight a day at 65°F.
Broccoli	I	5	5-7	Frost tolerant, survives well
Brussels sprouts	I	5	5-7	Frost tolerant, survives well

Annual Flowers and Vegetables	Germination Requirements	# Days to Germination	Total Crop Time (weeks at 60°F)	Comments
Cabbage	I	4-5	5-7	Frost tolerant, survives well
Cauliflower	I	5-6	5-7	Frost tolerant, survives well
Cucumber	III	2-5	3-4	Susceptible to frost, seeded in container
Eggplant	III	6-8	6-8	Susceptible to frost, requires care
Lettuce	V	2-3	5-7	Moderately tolerant to frost, survives well
Muskmelon	III	3-4	3-4	Susceptible to frost, seeded in container
Onion	I	4-5	8-10	Very frost tolerant, survives well
Pepper	III	7-8	6-8	Frost susceptible, require care
Tomato	III	6	4-7	Frost susceptible, survives well
Watermelon				
Regular	III	4-5	4-6	Frost susceptible, seeded in container
Seedless	III	5-6	6-8	Frost susceptible, seeded in container

Key

- I - Germination over a wide temperature range without a light response.
- II - Germinate only at cool temperatures without a light response.
- III - Germination only at warm temperatures without a light response.
- IV - Germination only at a restricted range of temp. without a light response.
- V - Germination over a wide range of temperature when exposed to light.
- VI - Germination enhanced over a wide temp. range when exposed to light.
- VII - Germ. over a wide temp. range; enhanced at warm temp. - exposed to light.
- VIII - Germination over a wide temperature range when held in dark.
- IX - Germ. over wide temp. range; enhanced at warm temp. - held in dark.

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