

Seedling Start Dates, Plant dates and Hardening

START INDOORS EARLY

With a short growing season in Southern Alberta it is a good idea to start annual flowers and certain garden vegetables early. By giving the plants an extra few weeks of growing time allows them a good head start on the year.

HARDENING OFF

Plants react adversely to drastic change; in particular, decreases in temperature. Plants that have been grown in a controlled environment are tender and the risk of tissue damage from exposure to sudden temperature decreases is great. Gradual exposure is the key to success. For home owners the most practical method of acclimatization involves movement of plants outdoors for increasing periods of time. If purchasing plants before the recommended planting date (usually towards the end of May), plants will have to be moved outside during warm days and inside at night. During the second week place plants outside and leave outside at night if there is no chance of frost. Keep the plants well watered as they will dry out quickly.

There are a few key ingredients needed for healthy seedlings.

- **Soil** - proper growing medium for plants should stay light and friable. A soil-less media that contains sphagnum moss, vermiculite and perlite would be ideal. These mixtures do not contain much nutritional value but a seed contains all the food it will need to germinate.
- **Temperature** - many annuals are native to tropical and subtropical regions and therefore require warm soil temperatures to grow. For the most part seeds will germinate better if the soil temperature is constantly above 70°F, some varieties germinate better with temperatures between 80° and 85°F. There are bottom heating seed propagation mats available to create a constantly warm environment conducive to seed germination. Another option is to place trays on top of your fridge.
- **Moisture** - Seeds need constant moisture to germinate. Water the media and mix it to distribute the moisture evenly prior to sowing. One of the best ways to maintain a moist environment is to cover the tray with a plastic dome or drape a piece of plastic wrap over top. Once the seeds start to sprout remove the cover so they can get some light and much needed air circulation. Make sure to water with a very fine spray so that seeds don't get washed away. Always try to use room temperature water and it is always advisable to let water sit for a day to allow the chlorine to dissipate.
- **Light** - most seeds do not need light to germinate, just warmth - moisture - darkness. Once seeds have sprouted and seedlings appear above the soil, light is necessary.
- **Fertilizer** - Not necessary for seeds as they contain all the food and energy they need to germinate. Young seedlings will need a weak fertilizer solution to grow and thrive

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GETTING STARTED

Fill the containers almost to the brim with moistened soil. Smooth out and tamp down.

Seeds should be planted no deeper than the thickness of the seed. Carefully set seeds on the surface of the media and then sift extra soil on top to cover them. If the seeds are tiny simply press them into the surface or you can mix them with sand to ensure even distribution. Once seed's have been sown cover the entire tray with a plastic dome or plastic wrap to maintain a moist environment.

When seeding into cell packs or individual containers sew 3 seeds per container, the extra seeds will act as insurance.

Place tray in a warm spot and make sure the medium stays consistently moist until seedlings begin to emerge.

SEEDLING DEVELOPMENT

Light - without adequate light seedlings will end up weak. If using a windowsill, make sure to rotate plants every couple of days so the seedlings grow straight. With fluorescent lights use a fixture with an adjustable height. Once germination has occurred lights should be practically on top of the seedlings - no more than 1" away. Around 16 hours of light a day for best the growth and development of seedlings.

Moisture - Once the seedlings are a couple inches tall, start to let the top half-inch of the soil actually dry out between waterings. Be careful as too much moisture encourages damping-off (root rot). Water less frequently and more deeply.

Temperature - Seedling will grow well with air temperatures between 65° and 75°F. Bottom heat seems to help speed up developing plants.

Fertilizer - Once a second set of true leaves has emerged you can start fertilizing with Fertilizer 10-52-10 at ¼ strength once every ten days.

Thinning-out - is an important step in the growing process Overcrowded seedlings develops into inferior plants so take time to remove weaker and excess seedlings.

Planting-up - Many individuals start seeds in a tray and then transplant them once they have developed true leaves. When transplanting seedlings handle with care. Gently shake plants to achieve separation. Then set individual plants into a hole deep enough so that most of the stem is below the soil surface. This will help the plant develop a strong stem. Pack the soil gently around the plant and water lightly.

Damping-Off - if seedlings get attacked with damping-off throw out any infected seedlings. Then ensure seedlings that were not infected get plenty of ventilation and allow soil to dry between watering.

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Annual Start Dates

Variety	Botanical Name	Start Early	Germination	Plant Outside			
African Daisy	Dimorphotheca sinuata	Mar 15	3-4 wks	Jun 1			
Ageratum	Ageratum houstonianum	Feb 15-30	1-2 wks	Jun 1	do not cover		
Baby blue eyes	Nemophila menziesii	May 1	1-2 wks	May 15	can sow outside in May		
Bachelor's button	Centaurea cyanus	May 1	1-2 wks	May 15	needs darkness; can sow outside in May		
Balsam	Impatiens balsamina	Apr 1-15	1-2 wks	Jun 15			
Begonia	Begonia semperforens	Jan 15	2-6 wks	Jun 15	difficult to grow from seed		
Browallia	Browallia speciosa	Apr 1-15	2-3 wks	Jun 1	do not cover seeds		
Butterfly flower	Schizanthus pinnatus	Mar 1	2-3 wks	Jun 1	cover flat		
Calendula	Calendula officinalis	Mar 15-30	1-2 wks	May 15	cover flats; may be sown outside in May		
California Poppy	Eschscholzia californica	Sow outside	1-3 wks		sow outside early in May		
Candytuft	Iberis umbellata	Apr 1-15	1-2 wks	May 15	can be sown outside in May		
China aster	Callistephus chinensis	Apr 1-15	1-2 wks	Jun 1			
China pink	Dianthus chinensis	Apr 1-15	1-2 wks	Jun 1			
Clarkia	Clarkia unguiculata	Sow outside	1-2 wks		sow outside in early May		
Cockscomb	Celosia cristata	Apr 1	1-2 wks	Jun 1	use peat pots		
Coleus	Coleus blumei	Mar 15	1-2 wks	Jun 1	do not cover seeds		
Cosmos	Cosmos bipinnatus	Apr 7-21	1-2 wks	Jun 1	can be sown outside in May		
Cup flower	Nierembergia hippomanica	Mar 1	2-3 wks	Jun 1			
Dusty miller	Centaurea cineraria	Mar 15-30	1-2 wks	Jun 1	do not cover seeds		
Evening scented stock	Matthiola longipetala	Apr 1-15	1-2 wks	Jun 1	do not cover seeds		
Four o'clock	Mirabilis jalapa	Apr 1-15	1-2 wks	Jun 1	can be sown outside		
Fried egg plant	Limnanthes douglasii	May 1	1-2 wks	Jun 1	can sow outside in May		
Fuchsia	Fuchsia x hybrida	Feb 1	2-3 wks	Jun 15	tender perennial		
Geranium	Pelargonium x hortorum	Feb 1	2-3 wks	Jun 1	tender perennial		
Globe amaranth	Gomphrena globosa	Apr 1-15	2-3 wks	Jun 1			
Godetia	Clarkia amoena	Apr 1-15	1-2 wks	May 15	do not cover seeds		
Heliotrope	Heliotropium aborescens	Feb 1-15	1-2 wks	Jun 15			
Impatiens	Impatiens wallerana	Mar 1-15	2-3 wks	Jun 1	do not cover seeds		
Kenilworth ivy	Cymbalaria muralis	Apr 1-15	1-2 wks	Jun 1	self-seeds; can be invasive		
Lavatera	Lavatera trimestris	Apr 1-15	2-3 wks	May 15	can sow outside in May		
Livingstone daisy	Mesembryanthemum	Mar 15	2-3 wks	Jun 1	cover flat		
Lobelia	Lobelia erinus	Feb 15	2-3 wks	Jun 1	do not cover		
Love-in-a-mist	Nigella damascena	Apr 1-15	2-3 wks	May 15	can be sown outside in May		
Marigolds	Tagetes spp.	Apr 1-15	1 wk	May 15			
Nasturtium	Tropaeolum majus	Apr 15	1-2 wks	May 15	can be sown outside in May		

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Annual Start Dates Cont.

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Nemesia	Nemesia strumosa	Mar 15	1-2 wks	Jun 15			
Nicotiana	Nicotiana glauca	Mar 15-Apr 1	2-3 wks	Jun 1	do not cover seeds		
Ornamental kale	Brassica oleracea acephala	Jan 15-Mar 15	1-2 wks	May 15			
Pansy	Viola x wittrockiana	Mar 1-15	2-3 wks	May 15	cover flat; refrigerate 4-5 days		
Petunia	Petunia x hybrida	Mar 15	1-2 wks	Jun 1	do not cover seeds		
Phlox	Phlox drummondii	Apr 15-30	1-2 wks	Jun 1	cover flats; can be sown outside in May		
Poppy, opium	Papaver somniferum	Mar 15—Apr 1	1 wk	Jun 1			
Poppy, Shirley	Papaver, rhoeas	Apr 15-30	1-2 wks	May 15	use peat pots		
Portulaca	Portulaca grandiflora	Mar 15	1-2 wks	Jun 1	use peat pots; can be sown outside in May		
Salpiglossis	Salpiglossis sinuata	Mar 15	2-3 wks	Jun 15	cover flat		
Salvia	Salvia splendens	Mar 1	1-2 wks	Jun 1	do not cover seeds for 48 hrs		
Snapdragon	Antirrhinum majus	Feb 15— Mar 1	1-2 wks	May 15			
Statice	Limonium sinuatum	Mar 15-30	2-3 wks	Jun 1			
Strawflower	Helichrysum bracteatum	Mar 1-15	1-2 wks	Jun 1	do not cover seeds		
Sun flower		Apr 15-30	1-2 wks	Jun 1	usually sown outside in May		
Swan River daisy	Brachycome iberidifolia	Apr 15-30	2-3 wks	Jun 1			
Sweet alyssum	Lobularia maritima	Apr 15	1-2 wks	May 15	do not cover; can be sown outside in May		
Verbena	Verbena hortensis	Feb 15-30	2-3 wks	Jun 1	difficult to grow from see cover flat		
Viola	Viola cornuta	Mar 15-30	1-2 wks	May 15	cover flat; refrigerate 4-5 days		
Zinnia	Zinnia elegans	May 1	1-2 wks	May 15	sow outside in May or use peat pots		
Black-eyed Susan vine	Thunbergia alata	Apr 1-15	4 wks	Jun 1	do not cover		
Canarybird vine	Tropaeolum peregrinum	May 1	1-2 wks	Jun 1			
Cup-and-saucer vine	Cobaea scandens	Feb 1-15	2-3 wks	Jun 15			
Morning glory	Ipomoea tricolor	Apr 15-30	1-2 wks	Jun 1	soak or scarify; use peat pots		
Potato vine	Solanum jasminoides	May 1	1 wk	Jun 1	worth trying to obtain seeds		
Scarlet runner bean	Phaseolus coccineus	Sow outside	1-2 wks	May 1-15	edible beans		
Sweat pea	Lathyrus odoratus	Apr 15-30	2-3 wks	May 15	scarify; use peat pots; start outside late Apr		