Annual Flowers for Minnesota
This chart shows the difference in life cycles of annual, biennial and perennial plants. An annual is a plant that lives for one growing season and then dies. It develops from seed or cutting into a flowering plant, then sets seed and dies in one growing season or year. Annuals are genetically programmed to flower, seed, and die. The formation of seed can actually trigger senescence or aging and death. No food reserves go into other parts of the plant, such as a bulb, corm or roots as in perennials, so all the food and energy of annuals goes into flower and seed formation. That is why we can count on annuals to bloom and flower all summer long. © UC Davis from the slide set How Plants Grow: Basic Botany and Horticulture.
Because annuals live only for one year, the length of that year or specifically the growing season, is critical. The growing season is defined as the period of frost free days or from the date of the last frost in the spring until the first frost in the fall. Typically in Minnesota, this is about 140 days, perhaps more in the south and much less in the north. This slide shows a typical date of the last spring frost for the state. There is only a 10% chance of frost after these dates.

On these dates, a 10% chance of frost remains.
Annuals can be classified into four types: hardy, half-hardy, tender and horticultural annuals. *Lathyrus odoratus*, sweet pea, is an example of a hardy annual. Hardy annuals can tolerate frost and some actually grow best in cool weather, like sweet peas. Hardy annuals usually have a shorter growing season and can be direct seeded outdoors early in the spring and will flower fairly rapidly from seed.
Other hardy annuals are *Centurea cyanus*, bachelor’s button. This easy to grow annual is clear blue, pink or white. It is easy to grow from direct seeding in the garden, and often self-sows.
*Calendula officinalis*, calendula or pot marigold is another hardy annual. Its large “c” shaped seeds are easy for children to plant. They make good cut flowers and plants often reseed themselves. Calendulas can tolerate temperatures in the mid-20’s, and actually do not grow well in hot weather. Great for cabins up north!
A large number of annuals fit the description of half-hardy; they tolerate some frost, but not much below 30 degrees. They can be direct seeded or started indoors, so the length of time they need to flower is intermediate. Examples are marigolds, dusty miller, ageratum, and nicotiana.
Other half-hardy annuals are cleome, shown in the background, and petunia in the middle. Sweet alyssum in the foreground is a hardy annual.
The third group called tender annuals are plants that cannot tolerate frost at all. These tropical or heat loving plants do not grow well in cool temperatures and require a long growing season, so they are started indoors well ahead of the last frost date. *Begonia* Semperflorens-Cultorum Hybrids, wax or fibrous begonias are tender annuals.
*Impatiens walleriana*, patience plant or busy lizzie are also tender annuals. These heat loving plants do not get a head start by being planted when the soil and air is cool, wait until the end of May and warm weather before planting them outside.
Horticultural annuals are plants grown as annuals, but are really perennials in warmer climates. *Salvia farinacea*, mealy-cup sage, or blue salvia is a perennial, but grows nicely as an annual in Minnesota. It is an annual everyone should enjoy. Its blue spikes last many weeks and bees and butterflies love it. Newer colors are white and bicolors of blue and white.
Annuals are known for the stunning display they can make. Here is the annual display garden at the Minnesota Landscape Arboretum when the theme was an English Cottage Garden. *Ageratum houstonianum*, ageratum, makes a strong line of blue-purple amid yellow *Tagetes* spp., marigolds and white *Zinnia elegans*, zinnias.
How about this for your front yard next year? This car-stopping display was found in Saskatoon one summer. Fibrous begonias make up the red, and *Sempervivum* spp. hens and chickens are the green.
Have a theme in mind for your yard? Or more likely for the city park, library or school, again fibrous begonias can make a dramatic display. This is the “Flower Hole” at the Sentry golf course in Stevens Point, Wisconsin, where each year the theme is different. This was the year of the Olympics.
Another portion of the same golf hole. Yellow marigolds and blue ageratum complete the colors along with more begonias. In order to make a display, many annuals should be used. One or two, or even a few do not make an impact, but put in a dozen or so and you begin to have a block of color.
Want to landscape your home with a new color scheme each year? This owner in Saskatoon could do just that. Annuals are temporary, so you can experiment with color schemes until you get exactly what you want. Although the colors stay the same all year and do not change, the tradeoff of flowers all summer is very attractive.
Colors are very important in selecting annuals. Here are cool colors of blue salvia and purple ageratum are highlighted with white alyssum. Blue and purple are soothing colors, they provoke feelings of relaxation and calm. They almost make you sigh to look at them.
Hot colors, such as red, yellow and gold evoke excitement and perhaps anxiety. We all notice a red stop sign. Bright, hot colors lead the eye and catch your attention. Plant hot colors where you want people to look, plant blue or purple if you want the colors to be lost and not noticed.
Here *Senecio cineraria*, dusty miller, provides an almost white line. White is a bright, eye catching color. It represents cleanliness and purity and stands out in the evening. The blue *Lobelia erinus*, lobelia, fades in this planting and the yellow and red zinnias stand out.
Starting your own seed? This is a project for experienced gardeners. Two important factors are high light and cool temperatures. Most homes are much more comfortable for people than plants. For more information on starting seed indoors, see the Extension publication *Growing and Using Annuals and Bulbs, MI-6076*, available from your local Extension office. The main advantage of starting your own seed is you get exactly the cultivars and varieties you want. With so many new introductions, you may not find that petunia you had last year, so starting your own seed may be for you, if you have favorites.
Commercial production of annuals from a seeder assures one seed per container. A seeded flat is very efficient in terms of spacing and plant success. No more thinning and transplanting a tiny bareroot seedling.
Seeds germinate and are moved to the proper temperature for growth.
A plug, or small plant grown from seed in an individual cell, assures a rapid growth rate and little damage or set back from transplanting. Most all annuals today are grown from plugs and transplanted into market packs.
You can purchase annuals in a variety of ways at the garden center. The plants on the left are in a market pack that has individual cells for each plant to develop roots on its own. This is ideal for plant growth and transplanting and the roots are damaged very little when planted outside. The plant in the middle, in an individual pot would be even better since the container is larger and the roots would also be bigger. On the right is a community pack, not seen as much today, although perceived by some consumers as a “better value” because you may get more plants. Usually 6 or 9 plants are grown in a common amount of soil in a community pack, instead of 4 or 6. The roots of these plants suffer greatly when transplanted, because they must be cut or pulled apart. Cut the roots as if you were cutting a cake, with each plant in an equal square or section.
Look for healthy white roots in annuals. The second plant from the left is showing signs of being root bound and aging because of the darker roots. If you see more roots than soil, and if the roots are starting to grow in circles, gently massage the roots, or make 1” cuts at the base which will encourage them to grow outward after planting.
Good plants are short and stocky, with dark green foliage. Avoid spindly, leggy plants even if they have flowers, they may be already past their prime.
Before you plant have a soil test done. Contact your local extension office for information. It is important to know your soil pH and nutrient levels before you plant. Correct the pH if necessary according to the soil test results and add fertilizer as recommended. Most soils also benefit from additional organic matter, such as peat moss or compost.
When you are ready to plant outside, choose a cloudy day with little wind. Hot sun and wind can cause wilting and sunburn. Especially if you have grown the plants in your home, they will need to be “hardened off”, or gradually exposed to direct sun outdoors. Mark off the area to be planted with string, or flour or make a shallow furrow with a hoe. What is the pile of green beside the person on the left?
If you look closely, it is probably the tops of leggy annuals that have been pinched off to assure branched and thick bushy plants. Many recommendations call for pinching off the flowers at planting to encourage branched, full plants. Once annuals begin to flower, they may not branch and fill out without pinching. Blue salvia, if pinched at planting will have 4-8 flower spikes instead of 2-3. If this is hard for you to do, pinch half of the plants and watch which ones grow better.
Thinning, like pinching may be hard for you to do. But each plant each need its space and if crowded, all will be weak and small instead of a few large, healthy plants. Read the seed packet or plant tag for proper spacing recommendations. Annuals are usually spaced 6-12” apart.
Water is critical for annual flower growth, but put it in the soil, not in the air!! The best time to water is early morning. Annuals have shallow root systems, so supplemental water is usually necessary. If you cannot provide additional water select plants that will do well in dry conditions.
A soaker hose is ideal for getting the water where it is needed and not on the foliage which can cause diseases problems.
Fertilizer is another very important key to successful annuals. Have a soil test done of your garden every 4-6 years. Apply fertilizer based on this test. During the summer, try using dilute liquid fertilizer on a regular basis when you water. If you have had flowers that just seem to “not grow much”, fertilizer may have been limiting. Annuals especially respond to liquid fertilization. A slow release fertilizer, like Osmocote® shown here is often used in the soil mix for container plants or planted at the base of each annual in the garden.
This illustration from the book, *Illustrated Encyclopedia of Perennials* by E. Phillips and C. Colston Burrell, © 1993 Rodale Press, Inc. compares three important maintenance practices for flowers. On the left is pinching, which we talked about with new transplants. Pinching encourages side branches, makes the plant compact and uniform and delays flowering. In the center is disbudding, or removal of (usually side) flower buds before flowering. This causes one large flower to develop, and is often used for flower shows on sunflowers, dahlias, roses, or for giant pumpkins. On the right is deadheading, removal of flower buds after flowering to prevent seed set. Deadheading increases flower production. The larger the flower, the more benefit from deadheading. Annuals benefit a great deal from deadheading. Seed production in annuals can actually signal or initiate the death of the plant, so removal of faded flowers is important.
Using a mulch in the summer can cut down on your work of weeding and keeps the soil moist and avoids root damage from cultivation. Compost, shredded leaves, and grass clippings are good mulches.
When your site is ready, now you need to select the proper annuals. What a huge number there are to choose from! Hundreds of geraniums, hundreds of petunias as well as many new annuals every year. To help you make decisions, look for award winning annuals.
All-American Selections are plants that have been judged across the US as superior flowers or vegetables. Each year the winners are announced and grown in four locations in Minnesota. These plants represent the best new flowers and vegetables to try in your garden.
Verbena ‘Quartz Burgundy’ was selected as an AAS winner in 1999. A free flowering, sun-loving plant about 10” tall, it has performed well in Minnesota.
The locations where you can see these AAS winners are listed here. Look for an open houses or Horticulture Nights when you can have guided tours of the plantings.
The West Central Experiment Station in Morris, Minnesota attracts hundreds of visitors on its popular Hort Night, usually held in late July.
The North Central Experiment Station in Grand Rapids has a large annual display and its Hort Day is usually in late August.
The Minnesota Landscape Arboretum displays the winning plants each year and has its own theme of annual displays.
And, finally the Horticulture Garden on the St Paul campus of the U displays many of the AAS winners. These gardens can give you many ideas for specific cultivars and types of annuals for your garden. See also the publication *Cultivar Trials of Bedding Plants*, MR-6432, available from your Extension office. Now, let’s look at some popular annuals and their site preferences and cultural requirements.
Shade tolerant annuals fill a need for many gardeners. Impatiens are a favorite for providing color in the shade. Some types such as the Accent group can tolerate quite a bit of sun if well watered. The first garden impatiens were about 12-18” tall, as shown here.
Most new impatiens are dwarf or elfin types, much smaller plants, often just 6’ tall. Look carefully at the plant labels or catalog description to get the height you need in your garden.
The New Guinea hybrid impatiens, *Impatiens hawkeri* have showy flowers and foliage. They like shade and adequate moisture.
Fibrous begonias, *Begonia* Semperflorens-Cultorum Hybrids, are free flowering uniform plants for sun or shade. Be sure to provide water if grown in full sun.
Fibrous begonias make a grand display. In mass, they are very consistent and showy.
Coleus, *Solenostemon scutellarioides*, has been grown for years for its beautiful foliage. Great for shade, there are hundreds of different coleus. Here is ‘Bellengrath Pink’, with nasturtium, *Lantana* ‘New Gold’ and fan flower.
A coleus called ‘Painted Leaves’.
Another coleus called ‘Duck’s Foot Dark Red’.
Some annuals grow well in hot, sunny conditions. Zinnias are a very popular annual, they love the hot sun and can withstand dry poor soils. Native to Mexico, they love the heat. The traditional *Zinnia elegans*, has coarse sandpaper leaves, and is a great cut flower. Here, ‘Small World Cherry’ attracts butterflies and other insects.
‘Zenith Yellow’ is a large cactus flowered zinnia. This common form of zinnia can often get foliage diseases, such as powdery mildew.
To avoid mildew, try growing this narrow leafed zinnia, *Zinnia angustifolia*. ‘Crystal White’ was an All American Winner in 1997. You will love its smaller white flowers, which continue right up until frost.
Marigolds, *Tagetes* spp. cannot be beat for their heat and sun tolerance. From 6” to 3’ in shades of yellow, gold, and orange, these hot colors can be showstoppers. Marigolds can sometimes repel insects. Some people love their foliage fragrance and other dislike it.
The moss rose, *Portulaca grandiflora* is a tough annual for dry sunny places. It flowers best on sunny days and needs little care. Native to Mexico, it is low growing, less than 12” tall. The ‘Sundial’ series blooms even on cloudy days.
Cosmos, *Cosmos bipinnatus* and *C. sulphureus* are also good selections for hot, sunny, dry conditions. Cosmos grow easily from seed directly sown in the garden and are often used in “wildflower” mixes. Pastel colored selections *Cosmos bipinnatus* are 3-4’ tall, some of the yellow and orange ones *C. sulphureus* are only 8”. 
The showy cockscomb are used to sun, and hot weather. These hot colors will catch your eye and be attractive all summer. The crested form is curvy and waved, the plume type is more brush like, both are good as dried flowers.
‘Prestige Scarlet’, *Celosia cristata*, was an AAS winner in 1997. Noted for its branching growth habit, it was a break through in plant form for celosia.
Dusty miller, *Senecio cineraria*, is heat and drought tolerant. There are many forms of this plant, all with decorative white or silver foliage. In the background is red salvia, *Salvia splendens*. Red sage likes full sun and well drained moist soil.
Let’s move to other annuals that like sun and well drained, but moist soil. Petunias are another favorite. They are dependable for consistent bloom and color all summer. There are many different petunias, and each year other new selections await you at the garden centers. A 1995 AAS winner was ‘Celebrity Chiffon Morn’. This clear pink flower is a standout for color and attraction. It is a floribunda, or medium flowered type. A grandiflora petunia has even larger flowers, while very showy, they can can droop, especially the rain.
Multiflora petunias, like ‘Salmon Morn’ have numerous smaller flowers. They hold up well in rain and flower all summer.
A new dwarf petunia is the milliflora series, such as ‘Fantasy Ivory’, shown here. These dwarfs are about 8” in height and have quite small flowers. Deadheading is not as important on the dwarf petunias.
The final petunia class covered in this slide set is the carpet or training type, such as ‘Purple Wave’, the AAS award in 1995. When fertilized and watered, this plant will grow 3’ on center! This is a low growing almost ground cover wild type of petunia.
The petunia tree in Montgomery Minnesota! Done with many baskets of ‘Purple Wave’. The owner was sure to water this every day. It was probably fertilized often as well.
A primary color combination at the Arboretum. Yellow coreopsis, ‘Pinto Red’ geraniums, and blue ‘Vervain’ verbena. Geraniums can be counted on for color all summer.
Why are geraniums, *Pelargonium xhortorum* so popular? It is a top selling annual because it always blooms, the flowers last a long time, and the plants tolerate drought, dry gravelly soils, heavy soils, and neglect. They flower in cemeteries with no care. Yes, geraniums are annuals you can count on.
Seed geraniums may have more heat tolerance. The ‘Orbit’ series, shown here, does well in Minnesota. Whether from seed or cuttings, geraniums are one of the gardener’s favorites.
Spider flower, *Cleome hasslerana*, is a tall annual for the back of the border. Its large, round flowers last a long time. The ‘Queen’ series is a good selection. Look for seedlings the following year, as cleome often self-seeds on its own.
This showy fountaingrass, *Pennisetum setaceum*, likes warm weather. It should be started indoors or purchased as plants from the garden center. Fountaingrass likes full sun and does well in drought conditions. The purple flower is a verbena, *Verbena bonariensis*, a tall verbena that attracts butterflies and other insects.
The purple or crimson fountaingrass is also popular. Crimson fountaingrass, *Pennisetum setaceum* ‘Rubrum’, has dark purple foliage and flowers. It sets very little, if any seed, and tolerates no frost, so treat it like a geranium. In the foreground is the same verbena, *Verbena bonariensis*.
Rose periwinkle, *Catharanthus roseus*, is a compact, free flowering annual that tolerates some shade. Flowers come in pink, white, and shades of red.
It also grows well in full sun and is very heat tolerant.
Hybrid flowering tobacco, *Nicotiana xsanderae* is easy to grow annual that tolerates light shade or full sun. Its trumpet-like flowers are attractive to hummingbirds. Known for its sweet evening fragrance, it is a joy to have near your deck or patio.
The dwarf forms of flowering tobacco are from this large parent, *Nicotiana alata* flowering tobacco, sometimes this plant grows from seedlings of the dwarf form. Old-fashioned flowering annuals were much taller, like this, today many small or dwarf forms are popular.
Lets look at annuals that like cool weather, which we have in Minnesota. Pansies, *Viola xwittrockiana*, love cool days and nights. Plant this in August for flowering the following spring. Or plant in early spring as soon as the soil is thawed. Pansies can tolerate frost and can be grown as biennials, although they are really perennials.
Johnny jump ups, *Viola tricolor*, or violas are smaller than pansies, although crosses between the two have been made, these 6-8’ plants also thrive in cool weather and usually self-seed readily in the garden.
Sweet alyssum, *Lobularia maritima*, makes a solid mass of low white or light purple flowers. Called sweet for the fragrance, this member of the cabbage family can self-seed and withstands frost well. Use it for borders, containers, or along rock walls, as in this slide.
Snapdragons, *Antirrhinum majus*, are actually perennials, but flowers all summer as annuals in Minnesota. Newer snaps have open faces and are shorter. ‘Liberty Yellow’ is a beautiful selection that is about 12” tall. Snapdragons can tolerate light frost and cool conditions.
Blue lobelia, *Lobelia erinus*, is great for hanging baskets or porch boxes. It needs regular watering and does not like hot, dry conditions. Cool and shady places are best for this annual.
Uncommon annuals are in the next few slides. Here is scarlet salvia, *Salvia coccinea*, ‘Lady in Red’ was an AAS in 1992. This showy salvia is larger and multi-branched compared to the regular red sage. It is also an attraction for butterflies and hummingbirds. Plant it in full sun and water often.
Cup plant, *Nierembergia hippomanica var. violacea* is a little used annual. It is tough and tolerates a wide variety of soil types. Growing only 6” tall, it makes a good border or container plant. ‘Mont Blanc’ is a white form, it also comes in purple and blue. Cup plant, *Nierembergia hippomanica var. violacea* is a little used annual. It is tough and tolerates a wide variety of soil types. Growing only 6” tall, it makes a good border or container plant. ‘Mont Blanc’ is a white form, it also comes in purple and blue.
The wishbone flower, *Torenia fournieri*, gets its common name from the two stamens in the flower that are bowed like a wishbone. Plant in light shade or full sun, but do not allow to dry out. Wishbone flower must have moisture and will die in a matter of days. Flowers are usually bicolor, with dark and light coloring.
The butterfly plant, *Tithonia rotundifolia*, is not new, but is popular again due to its attraction for butterflies. Most forms of this are quite tall, 3-4’, so use in the garden is more limited. The flowers are bright red-orange and the leaves are large and covered with soft hairs.
The fan flower, *Scaevola* ‘Blue Wonder’ is a training plant good for hanging baskets. It may need pinching to keep it bushy. New dwarf forms are available now as well.
Each individual flower resembles a small fan.
Shrub verbena or lantana, *Lantana camara*. is more tropical annual. It develops into a woody plant if grown indoors year round. It does well in full sun and warm conditions. Lantana responds well to training; here a lantana tree makes an attractive focal point in a bed of marigolds and ageratum.
Butterdaisy, *Melampodium paludosum*, is a drought tolerant heat loving daisy-like annual. Covered with numerous flowers, it makes a good bedding plant.
Notice the blue flower here? Yes, but not till your eyes have looked beyond the red geranium and yellow dahlberg daisy’s! The blue is heliotrope, *Heliotropium arborescens.*
Heliotrope was named the annual flower of the year in 1898! Gardeners are again enjoying it. Also called the cherry pie plant for its wonderful fragrance, heliotrope likes full sun and adequate moisture. Usually blue or purple, it is also available white flowered forms.
Don’t overlook houseplants for showy shady corners in the summer. Here coleus ‘Green Eyes’ left, and ‘Rob Roy’ right, combine with polka dot plant, *Hypoestes* ‘Pink Splash Select’ in the right front. *Begonia* ‘Amigo Pink’ is in the center.
A beautiful blue annual is *Browallia americana*, bush violet. Plant in shade and keep well watered. This makes a good combination with pink and white impatiens.
Many annuals are grown in containers. The Arboretum’s annual theme is carried out in the containers on the front entryway. Use a variety of plants with different foliage colors and textures. The large leafed caladium and coleus makes a good focal points in this container. Silver licorice plant or *Helichrysum petiolare*, is on the left, and *Bidens* spp., yellow tickseed, fan flower and *Vinca major*, periwinkle, trail over the side.
Porch boxes add comfort and color to a deck. Licorice plant and *Bacopa* spp. water hyssop, (right) trail from the container. Blue salvia and ‘Pink Morn’ petunias create a soft cooling color combination.
Flower pouches are fun to hang on a wall or flat surface. But these plastic containers will dry out rapidly. Plan on watering every day to keep from wilting. Impatiens and bush violet as well as coleus grow well in these pouches. Puncture holes in a 2’ section of old hose and insert this as a “watering tube” in the back of the pouch as you plant it. Add water in the hose and you can get moisture to the bottom of the pouch without it running out the front holes. Liquid fertilizer is good to use in these containers.
The list of disease prevention is important to review in growing annuals. Read and follow these suggestions closely for trouble free plants. Prevention is easier than control.

Disease Prevention for Herbaceous Plants

• Select disease resistant varieties
• Clean-up weeds
• Remove and discard infected plants, debris, old plant parts
• Keep foliage dry
• Use the right plant for the site
• Maintain good air circulation
Here are a few common problems on annuals. Powdery mildew on black-eyed Susan. Keep the foliage dry, thin out plants and, if possible plant disease resistant cultivars.
The black specks are aphids, they just love certain plants, such as nasturtiums, *Tropaeolum majus*. A strong spray of water will dislodge the insects. Watch new growth closely, aphids tend to feed there and cause distorted, curled or mis-shaped leaves.
Aster yellows on marigolds. Typical symptoms are yellow or green flowers, strange flowers, then brown and dead flowers. Remove all infected plants, the problem may be back next year or may disappear. Spread by leaf hoppers, aster yellows affects many flowers and weeds. Often one plant is affected and another side by side is unaffected.
These begonias look OK, but are small and not as large as they could be if watered regularly and fertilized with liquid fertilizer. Any complete, water soluble fertilizer will work. Dilute it to ¼ strength and water daily; or use weekly at regular strength.
So, if you have a large bed of annuals.....
Or just a container or two, these showy flowers can be a wonderful source of color and enjoyment for you home and yard.
The slide set is from the University of Minnesota Extension Service. Contact your local Extension office for a list of gardening publications, or look on the website: www.extension.umn.edu