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Summer Bulbs: Care and Overwintering Tips

BY BRITTNAY HAAG, EXTENSION EDUCATOR, HORTICULTURE

When you think of bulbs, you typically think of the classic spring-bloomers like tulips and daffodils. However, there are some bulbs that bloom continuously from early summer to fall. Summer bulbs are planted in the spring and bloom throughout the summer. They include elephant ears, cannas, caladiums, tuberose begonias, dahlias, and gladiolas. While not all are "true bulbs," (actually tubers, corms and rhizomes) they are all commonly called "bulbs" for simplicity.

Unlike spring-blooming bulbs, summer bulbs do not need, and actually cannot survive cold winter temperatures. They should be dug from the soil and overwintered to be grown again next year. Here are some general tips to help with your overwintering success.

- Dig bulbs in the fall after a light frost has turned the foliage light brown. This will trigger the plant to go dormant and not grow. Cut the stems 4 to 6 inches above the ground before digging. Be careful not to damage the bulb, as this will allow an entry place for diseases. Large clumps of soil on the bulb can be removed gently.
- After digging your bulbs, inspect them for any soft spots that may be diseased. Select only the biggest, healthiest bulbs to overwinter. Let bulbs sit out to dry for several days before storing to avoid later rotting.
- Here are several methods and mediums to store bulbs in. Place the bulbs in wellventilated containers and pack the bulbs with peat moss, small wood chips, or sawdust. Bulbs can also be wrapped lightly with newspaper. The purpose of the material it to

help retain moisture so the bulbs don't dry out.

- Make sure to label your bulbs to correctly identify them when you go to plant.
- Place the containers in cool areas that will not freeze, such as a basement, crawlspace, garage or shed. Store bulbs around 50° F.
- Check the bulbs monthly for rotting or drying bulbs. Discard rotten bulbs and lightly mist dry bulbs to add moisture.
- Get a jumpstart on growing your summer bulbs. Six to eight weeks before the last frost date in your area, repot the bulbs in containers of potting soil. They can be treated as houseplants until they are ready to go outside.
- While these summer bulbs are often treated as annual plants and discarded after the summer, follow these simple tips to overwintering bulbs this year and save some money in the fall with beautiful tropical plants to fill your containers and landscape.



Crop Rotation in Home Vegetable Gardens

BY ANDREW HOLSINGER, EXTENSION EDUCATOR, HORTICULTURE

A successful year of gardening can be continued the next year with crop rotation. Crop rotation in a home vegetable garden is often overlooked or ignored. Crop rotation involves not planting the same vegetables or family of vegetables in the same place each year. Insect and disease problems often occur across families of vegetables and crop rotation helps to reduce these pest problems.

Insect pests are provided a reliable food source when the favored plant families are not rotated. A lack of crop rotation also favors disease by allowing disease-causing organisms to have a continual source of a host plant.

Vegetables within a family tend to use the same nutrients and rotating crops will help manage soil fertility by moderating the loss of nutrients from a particular family and allowing the nutrients to replenish. Fertility needs differ among plant families and will need to be accounted for next year.

When rotating vegetables keep in mind the cultural requirements of the plants. Draw a sketch of your garden showing the location of each vegetable, the spacing for in-ground beds or layout if in a raised bed, and approximate dates for each planting. With some planning and keeping good records, the amount of seed, irrigation, and fertilizer can be calculated before the next growing season.

		BED 3	BED 2		BED 1	
Y1	WINTER	FALLOW	FALLOW		FALLOW	
	SPRING		LETTUCE		TOMATOES	
	SUMMER	WINTER SQUASH	BEANS			
	FALL	SPINACH	RADISH		LETTUCE	
Y2	WINTER	Shiwken	MULCH		LEHIOCE	
	SPRING		BEETS		BRASSICAS	
	SUMMER	BROCCOLI				
	FALL		BEANS	TURNIP		
Y3	WINTER	MULCH	GARLIC		MULCH	
	SPRING	CARROTS			CURCURBIT/ CUCUMBER	
	SUMMER					
	FALL	RADISH				
¥4	WINTER	MULCH	MULCH		SPINACH	
	SPRING	LETTUCE	CARROTS		TURNIP	
	SUMMER	BEANS			WINTER SQUASH	
	FALL	GARLIC	RADISH		OKRA	
Y5	WINTER	MULCH	MULCH			
	SPRING		TOMATOES		RETURN TO YEAR ONE	
	SUMMER	SWEETPOTATOES				
	FALL	RADISH	SPINACH			
 Split boxes indicate crops or split beds. Retain vegetable crops so plant family is not planted year after year. The boxes below show the color codes for plant families in the rotation diagrams. 						

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GRASSES - POACEAE	LEGUMES - FABACEAE	BRASSICAS - BRASSICAEAE	NIGHTSHADES - SOLANACEAE	CURCURBITS - CURCURBITACEAE	BEETS, SPINACH - CHENOPODIACEAE
LETTUCE - ASTERACEAE	ALLIUMS - LILIACEAE	CARROT - APIACEAE	MISCELLANEOUS	FALLOW	MULCH

COMMON VEGETABLES AND THEIR PLANT FAMILY CLASSIFICATIONS

PLANT FAMILY	VEGETABLE		
Carrot Family (Apiaceae)	carrot, celery, parsley, parsnip		
Goosefoot Family (Chenopodiaceae)	beet, spinach, Swiss chard		
Gourd Family (Cucurbitaceae)	cucumber, muskmelon, pumpkin, summer squash, watermelon, winter squash		
Grass Family (Poaceae)	ornamental corn, popcorn, sweet corn		
Mallow Family (Malvaceae)	okra		
Mustard Family (Brassicaceae)	broccoli, Brussels sprouts, cabbage, cauliflower, Chinese cabbage, collard, kale, kohlrabi, mustard greens, radish, rutabaga, turnip		
Nightshade Family (Solanaceae)	eggplant, pepper, potato, tomato		
Onion Family (Alliaceae)	chives, garlic, leek, onion		
Pea Family (Fabaceae)	bush bean, kidney bean, lima bean, pea, pole bean, soybean		
Sunflower Family (Asteraceae)	endive, lettuce, sunflower		

Establishing Perennials in the Early Fall

BY AUSTIN LITTLE, EXTENSION EDUCATOR, HORTICULTURE

By the end of the summer season, most gardeners are ready to put up their feet and enjoy a bonfire, but it's a great opportunity to take stock of what worked in the garden the past year, what needs changing, and what can be added. Springtime is crunch time with so many gardening projects going on, and planting in fall is like putting money in the bank for next year. This is an investment in improved performance of plants in the spring and more time for other projects.

Perennials like trees, spring/summer flowering shrubs, and spring blooming ephemerals should be planted about 6 weeks before the first frost of the year. Here in Southern IL the first frost date is historically in the last two weeks of October. Further up-state it could be a week or two sooner than that so be sure not to plant too close to the first frost. In the fall, soils hold onto heat longer while the above ground temps may be dropping and this is ideal for new root structures to grow. The root systems need time to establish new micro or feeder roots in the soil which helps the transplant to acclimate, then gradually go into dormancy as colder winter temperatures arrive. An improved root structure is the main advantage over spring transplants because they typically have more time to acclimate to the local environment.

Ensure that plants are well anchored and planted in the soil to avoid frost heaving during winter. The collar of the plant should be level with the soil; if it's sitting above the soil line water can wick away quickly and kill the roots. If it's too deep, the roots can be smothered from lack oxygen.

Thoroughly water in plants when they are installed and water as needed up to the first hard frost. Even if it warms up a bit in late fall or early winter, its best to hold off on watering to avoid interrupting the hardening off process. The same applies to fertilizer application in fall and is not recommended. The addition of nitrogen and other nutrients in fall can cause the transplant to put energy into new vegetative growth that will be damaged by winter conditions and suppress the establishment of roots. It's best to hold off on fertilizing until early spring. However, it is a great idea to add a 2" to 3" layer of mulch around the base of plants, making sure to leave some open space around the trunks and stems to avoid harboring unwanted pests and moisture build up. Fall plants don't need to be mulched right away and can benefit from the sun warming the soil. Mulching





can wait until night-time temps are getting around 32°F. By adding mulch like straw or wood and making sure plants are well anchored in the soil, frost heaving can be avoided. Adding fall compost around new plants is also a great idea. By spring, most of the compost will be broken down and ready to be taken up by plants with root structures that have a head start on spring transplants.

Benefits of planting perennials in the fall:

- Improved root structure and resistance to fluctuating spring weather.
- Faster and more abundant bloom time in spring and summer.
- Improved vigor and resistance to stress.
- Improved suppression of warm-season weeds.

A few key tips to keep in mind for successful fall planting are-

- Order and buy plants with enough time to plant 6 weeks ahead of the first frost.
- Make sure to water them in well, then water as needed and stop watering after the first hard freeze.
- Help overwinter fall transplants with mulch and compost.
- Do not feed new transplants until spring, but adding compost in fall is okay!

Chrysanthemums Add Fall Color to the Garden

BY JENNIFER FISHBURN, EXTENSION EDUCATOR, HORTICULTURE

By now your petunias are leggy, your marigolds have stopped blooming and most of your other garden flowers look worn out. Hardy chrysanthemums also known as garden mums, take over when summer annuals fizzle out. This fall blooming perennial, valued for their intense color display at the end of the growing season, has become the undisputed "Queen of the Fall Flowers."

Mums originated in China and Japan, where they have been cultivated for nearly 3,000 years. The Chinese believed the plant had the power of life. Mums were introduced into the United States during colonial times. Today, chrysanthemum is one of the leading cut flowers and potted plants in the United States.

There is tremendous variety of flower colors, shapes, and sizes. Colors of mums include shades of yellow, pink, orange, bronze, red, purple, white and a few bi-colors. Flowers range from 1 to 6 inches across with varying types of blooms, including semi-double, buttons, ball-shaped pompoms, daisy-like or singles, and showy football types. Petals can be strappy or shaped like spoons, feathers, or threads. Plant heights range from 6 inches to 3 feet tall.

Mums are best planted in spring or early summer to assure better root establishment. In the spring, plants may be purchased as 4-inch potted plants, ordered from garden catalogs, or started from cuttings.

Mums need a fertile, well-drained soil and full sun. Good drainage is key to winter survival, as poor drainage will lead to winter-kill. For the best showing, plant in masses or in groups of three to five. In the perennial garden, hardy mums look great planted with asters, sedums or ornamental grasses.

Fall is a good time to visit nurseries and view mums in bloom. Late August to early September is the second best time for planting mums, this will allow at least some time for establishment before cold weather. Mums planted later in the fall do not become established and therefore may not survive the winter.

Mums have a shallow, fibrous root system so water thoroughly during hot, dry weather. Apply enough water to soak the soil to a depth of six inches. Mums are also heavy feeders and should

be fertilized with a complete soluble fertilizer, such as 10-10-10 (following the label directions) when they are actively growing. They should not be fertilized more than three times a year otherwise they get too large and top heavy. Cease fertilization when flower buds develop.

Chrysanthemums are a short day/long night plant, which means they naturally bloom as the days get shorter in the late summer. The period of darkness required to initiate blooming varies depending on the cultivar. By careful cultivar selection a garden could have mums blooming from August through October.

To develop bushy plants that will produce numerous flowers, mums need to be pinched. Pinching refers to the removal of

> about 1-inch of the tip of each branch or shoot by snapping it or cutting it off. The first pinch is done when the plants are 4 to 6 inches tall, pinch again after 6 inches additional growth. You may continue to pinch plants until July 4th.

Dead flowers should be trimmed off. After the ground freezes trim off the dead stems and place them back on top of the plant crown. This dead foliage along with a three to four inch layer of organic mulch such as shredded leaves or straw will help protect roots from frequent freezing and thawing of the soil in the winter.

Enjoy the fall color show that mums provide. Learn more about the history of mums, classifications and tips on growing mums at the National Chrysanthemum Society website at https:// www.mums.org/





What Can a No-Till Garden Do for You?

BY CHRIS ENROTH, EXTENSION EDUCATOR, HORTICULTURE

There is an ongoing debate on tilled versus no-tilled gardens. Tilling helps to introduce oxygen and organic matter into the soil profile and aids in breaking up heavy clay soil or areas that suffer from compaction. So why switch to no-till? Well, tilling also destroys the structure of your soil. Loose friable soil is desirable, but be aware that opening the soil up exposes it to air and sunlight which will greatly diminish your soil moisture. Over-tilled or pulverized soil has smaller soil particles that dry out quicker, and you can easily develop a 'crust' on the soil surface. Additionally, by tilling or 'lifting' the soil you are exposing dormant weed seed that will now germinate. Add in the labor that is required to till and the increased watering and weeding throughout the summer and you've created quite a chore.

Should you wish to switch to a no-till garden, a recommended approach is to avoid that lousy soil altogether and use raised beds. A raised bed's function is to define the planting space by elevating it above the ground plane. This is key because it supports the first rule of no-till gardening, you do NOT walk in the planting bed. Continuous foot traffic in a planting bed leads to increased soil compaction and thereby an increased need for tilling. Design your raised beds to be no wider than you can reach, usually 3 to 4-feet. Raised beds can have any shape or length, but just make sure you will not be tempted to step or walk through them. Raised beds can be constructed out of poured concrete, concrete block, stone, brick, or wood. Lay down cardboard or newspaper to suffocate any existing plants such as turf. Fill your raised beds with a mix of compost and some quality topsoil.

Mulch is the second key ingredient to no-till gardening. Mulch your raised beds with compost, straw, or shredded leaves at a depth of 2 to 4-inches. Maintain this depth every year as your mulch will continuously compost into your raised beds giving you wonderful soil. Fall is a great time to construct your raised beds as this will give your mulch time to breakdown over the winter and be ready for spring. You may need to topdress your garden beds with a fresh layer of mulch in the spring.

What if raised beds aren't an option for you, but you still prefer to avoid tilling? There are alternatives for gardeners that don't involve disturbing the soil. Add a thick layer of compost or topsoil to lawn or bare soil and rake it out in whatever shape of garden bed you wish, maintaining a 6 to 8-inch depth. Another technique is to have a large load of wood chips or mulch delivered. Rake out the mulch in the shape of your garden beds. Researchers at Washington State University recommend that to suffocate lawns and persistent weeds, mulch should be as much as 12 to 18-inches deep. Allow the mulch to settle and begin decomposition over the winter. When it comes time to plant in the spring, move the excess mulch aside and plant in the soil.



Office of Extension and Outreach 111 Mumford Hall (MC-710) 1301 W. Gregory Dr. Urbana, IL 61801

Signs of a Dead or Dying Tree

BY BRUCE J. BLACK, EXTENSION EDUCATOR, HORTICULTURE

Lately, I have noticed more diseased or dead trees in Illinois. When I notice those trees, my concern is safety. Insects and diseases, like the Emerald Ash Borer, have attacked many residential and rural areas, which can leave trees in varying health stages.

There are many signs of tree decline, where trees lose their vigor. One might notice pale green or yellowing leaves, early leaf drop, smaller leaves, poor overall growth, dieback of branches, or deadwood. Declines can be stress induced by environmental factors, improper care, insects, or disease over either short periods or years. Depending on the stressors, trees could recover or die out.

Deadwood is one of the common symptoms of hazardous trees. With a full leaf canopy, the deadwood can go unnoticed for long periods. Deadwood typically has no leaves, may have bark falling off in large pieces, and in some cases can be broken and hanging. Any branch larger than 4-feet or more or 2 inches in diameter are considered dangerous. Even small branches can cause injury depending on how high it falls.

A great example would be Ash trees that have been attacked by the Emerald Ash Borer (Agrilus planipennis), or EAB. These trees are at an increased risk of decline and are likely to have deadwood as the Emerald Ash Borer feeds on the tree. The larvae feed on the inner bark, disrupting the transport of water and nutrients within the tree. Due to this disruption, the leaf canopy of the tree begins to thin, the branches become deadwood, and soon the entire tree dies.

When trees die, they often become hazards to people, structures, and personal property. When people notice signs of decline, it is a good idea to investigate the cause and contact a certified arborist. There are services available that can help to identify problems, like your local Extension office.



"Local ash trees located next to busy highway after being attacked by Emerald Ash Borer. Thinned canopy and lots of deadwood." Photo credit: Bruce J. Black

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