Horticulture Hints







Fall 2010

LSU AgCenter
Research & Extension

Landscape Gardening and Ornamentals

Garden mums are colorful in fall

Garden chrysanthemums are hardy, herbaceous perennials that generally bloom from October to December in Louisiana.

They are short, bushy plants – about 12 to 18 inches tall – that literally cover themselves with clusters of small 1- to 1½-inch flowers in virtually every color except blue. This type of mum is available in the fall in bud or bloom at nurseries and garden centers in 4-inch, 6-inch and gallon containers.

When purchasing garden mums, select plants with mostly closed buds and healthy foliage. Plants already in full bloom will not be attractive as long. Chrysanthemums can be quite brittle, especially the larger plants in gallon containers, so handle them carefully as you bring them home. Garden mums may be planted in containers, in beds with existing shrubs and flowers or in well-prepared beds of their own.

Depending on how far along the blooming process was when the plants were purchased and the temperatures (the flowers don't last as long when it is still hot), the flowers generally last about two or three weeks. Some gardeners use mums as temporary color in the landscape, and when the flowers fade, the plants are removed and replaced with cool-season bedding plants. Chrysanthemums will, however, bloom in the fall garden for many years if grown properly.

Plant chrysanthemums in well-drained beds where they will receive at least six hours of sun each day. After they finish flowering, garden mums should be cut back far enough to remove all of the faded flowers (about one-quarter their height). If the winter stays very mild, some mums will re-bloom. In late January or early February, garden mums should be cut back to about 3 inches from the ground. New growth usually begins in February when new shoots appear at the base of the old stem stubs.

Plants that have been in the ground a few years will benefit from division. When you see the new shoots at the base of the plant, dig up the whole clump, divide it into two to four sections and replant them where you want them to grow. Discard the brown, woody middle of the plant and just plant the vigorous shoots from around the outside.

Dividing the mums makes them strong and vigorous and allows you to keep control over them. Otherwise, they tend to spread into areas of the bed where you didn't intend for them to grow.

Mums require no special care during the year. Fertilize with a general-purpose fertilizer when you fertilize your other flowers. Water thoroughly during periods of drought and keep them well mulched to reduce competition from weeds. To make the plants bushy and full, pinch the tips of vigorously growing shoots occasionally during the summer. Do not pinch or prune mums after mid-July.

We occasionally get flowers on our garden mums in the spring and early summer after especially mild winters. The display usually is not nearly as good as in the fall, and many buds may fail to open as the days lengthen and the nights get shorter. Cut the plants back in June about halfway, and they will bloom again in the fall.



Plant native shrubs this fall

Many of us think about planting shrubs in the spring, but fall is the best time to plant shrubs in Louisiana.

There are advantages to planting woody ornamentals in the fall. First, it allows the plant to establish a root system in the new soil long before shoot growth is initiated the next spring. Root activity takes place in relatively cool soil, even though the top (shoot) is not actively growing. Also, less supplementary water usually will be required in late fall and early winter than in late spring or summer.

Some excellent native shrubs are available for Louisiana. Consider adding one of these species to your home landscape:

Evergreen, semi-evergreen:

Species	Size	Light requirement
Coast leucothoe (*Leucothoe axillaris)*	3-6'	Partial shade, shade
Dwarf palmetto (*Sabal minor*)	~2-8'	Partial shade, shade
Dwarf yaupon (*Ilex vomitoria*, 'Nana')	2-4'+	Sun, partial shade
Florida anise (*Illicium floridanum*)	8-12'	Partial shade, shade
Fetterbush (*Lyonia lucida*)	2-6'+	Partial shade, shade
Groundsel bush (*Baccharis halimifolia*)	~12'	Sun, partial shade
Inkberry/gallberry (*Ilex glabra*)	7-10'	Sun, partial shade
Florida anise (*Illicium floridanum*)	6'-8'	Sun, partial shade

Deciduous:

American beautyberry (*Callicarpa americana*)	3-8'	Sun, partial shade
Native azaleas (*Rhododendron* species)	8-16'	Sun, partial shade
Native viburnums (*Viburnum* species)	6-15'	Sun, partial shade
Oakleaf hydrangea (*Hydrangea quercifolia*)	6-8'+	Shade, partial shade
Spicebush (*Lindera benzoin*)	3-10'	Sun, shade
Strawberrybush/wahoo (*Euonymus americanus*)	4-8'	Partial shade, shade
Virginia willow (*Itea virginica*)	3-4'	Partial shade, shade
Winterberry (*Ilex verticillata*)	6-10'	Sun, partial shade



Last days of summer

Fall may officially start on the fall equinox in September, but you shouldn't count on chilly weather anytime soon. Daytime highs in the 90s are not unheard of in September, and temperatures in the 80s typically linger well into October in Louisiana.

On the other hand, we are through the most intense heat of the summer. Shorter days mean there are fewer sunny, hot hours each day for plants to endure. And is it not unusual for cool fronts to start moving through in late September and early October to provide welcome relief from heat and humidity.

After a long, hot summer, gardeners and plants alike (except for tropicals) are more than ready for relief from the heat. Other than the loss of tropical plants during severe freezes, it seems more shrubs and herbaceous perennials die in the stressful conditions (hot, humid and too wet or too dry) of July and August than any other time of the year – primarily due to root and crown rot from overwatering or drought stress from underwatering.

Even though temperatures may be cooler, dry weather is a common problem as we move into October. So it continues to be very important for you to water the plants in your landscape properly next month.

To water effectively, you must apply the water slowly and over a long enough period of time to allow it to penetrate at least 4 inches into the soil. This is best accomplished with sprinklers or soaker hoses rather than hand watering.

Once you've watered, don't water again until the soil begins to dry out or plants show slight drought stress. Deep watering should be necessary only once or twice a week during dry periods. Watering too frequently increases fungal problems like leaf spots, crown rot and root rot.

Replenish mulch

Mulch may have decayed and thinned out over the summer. So it's a good time to replenish mulch layers with fresh material to maintain about a 2- to 3-inch thickness.

Simply spread the new mulch over the old mulch. Ideally, use what you can get for free – such as leaves, dry grass clippings or pine straw. If you prefer the appearance of a purchased mulch, put down 1 or 2 inches of leaves, dry grass clippings or pine straw and then top-dress with 1 inch of your favorite purchased mulch. This will save money and still give you the look you like.

Divide Louisiana irises

Louisiana irises are at their most dormant stage during the late summer, making September and early October the ideal time to divide them.

To divide your irises, dig up a clump using a shovel or turning fork. Be careful not to damage the rhizomes. Break or cut off the young rhizomes, which have green growth at their tips, from the large, old rhizomes. Discard the old rhizomes, and replant the young rhizomes.

Before replanting, however, take the opportunity to improve the bed by digging a 2- to 4-inch layer of compost or other organic matter into the bed along with an application of a general-purpose fertilizer.

Plant the rhizomes horizontally about 8 to 12 inches apart, with the fan of foliage facing the direction you want the plant to grow. Then carefully cover all of the roots. But remember that the top of the rhizome should show above the soil surface.

Finally, mulch the bed about 3 inches deep and water thoroughly.

This also is a good time to divide other perennials that start active growth during the fall and grow over the winter, such as Easter lilies, calla lilies and acanthus.

Forcing paperwhites



Paperwhite narcissi in our gardens generally begin to bloom in mid- to late December or January, so they typically bloom in winter anyway. Bulbs also can be planted in pots now and easily grown for bloom in December.

Plant the bulbs with their pointed ends exposed in pots of well-drained potting soil. Plant enough bulbs in the pot to fill it without the bulbs touching each other. Keep the pots in a sunny, cool location – preferably outside.

Grown in conditions that are too warm or with too little light, the leaves and flower stalks will be tall and tend to flop over. This frequently occurs when people try to force paperwhites in a warm room indoors on a windowsill.

For pots that are outdoors, bring them inside on those nights when freezing temperatures are predicted. When the first flower buds open, move the pot indoors to enjoy (some people find the fragrance objectionable). Move the pot of paperwhites into a cool, unheated location at night and back to its display location during the day to make the flowers last longer.

Paperwhites also may be grown in bowls of pebbles and water. Choose a shallow, decorative bowl and fill it half full of gravel, pebbles or marble chips. Place the bulbs on the surface and add enough rocks so the bulbs are two-thirds covered. Add enough water to touch the bottom of the bulbs, and maintain the water at this level. Proceed from this point as directed above to grow potted bulbs.

After forcing, you can plant the growing bulbs outside in a bed that receives part sun, and they will bloom for you year after year.

Dig and store caladium tubers

Caladiums generally begin to decline in late September or October, which means it's time to decide what you want to do with them.

If the bed where the caladiums are planted will stay relatively undisturbed and drains well, you may have luck simply leaving the caladium tubers in the ground. Keep the area mulched this winter to protect the tubers, and since the ground in Louisiana generally does not freeze, they often survive and come up next year.

If the bed tends to stay wet over the winter, however, the tubers will rot and it would be best to dig them up and store them. Caladiums should be dug out when a number of leaves turn yellow and the foliage begins to look "tired" and falls over. Do not wait for all of the foliage to turn yellow or brown. Use a shovel or a garden fork to lift the tubers, being careful not to damage them.

Leave the foliage attached to the tubers, shake and brush off the soil and lay them out in a dry location sheltered from rain (in a garage, under a carport). Allow the foliage to dry for about two weeks until it is tan and papery. At that time the foliage will easily separate from the tubers, leaving a cleanly healed scar. When the tubers are dry, they are ready for storing over the winter.

Place the tubers in an old nylon stocking, a mesh bag (such as an onion sack), a paper bag or cardboard box. The idea is that the container should be able to "breathe." Make sure you keep the tubers in a location where temperatures will stay above 70 degrees F.

With proper care, the tubers you planted this year can provide a beautiful display again next year.

Plant trees properly

November and early December are excellent times for planting trees in Louisiana.

During this period, the soil is still warm, encouraging vigorous root growth, and trees will have several months to get established before next summer's heat. At the same time, the weather is cool, and the trees are going dormant. This reduces stress. Generous rainfall during the winter also makes constant attention to watering unnecessary.

Planting at this time of year is especially beneficial for balled-and-burlapped trees, because they lose so much of their root systems when they are dug.

Plant trees properly using these steps:

- Dig the hole at least twice the diameter of the root ball and no deeper than the height of the root ball.
- Remove a container-grown tree from the container. If the root ball is tightly packed with thick encircling roots, try to unwrap, open up or even cut some of the roots to encourage them to spread into the surrounding soil. Place the root ball in the hole.
- Place balled-and-burlapped trees into the planting hole. Remove any nails, nylon twine or wire basket that has been used to secure the burlap. Then fold down the burlap from the top half of the root ball or remove the burlap.
- Make the top of the root ball level with or slightly above the surrounding soil. It is critical that you do not plant trees too deep.
- Thoroughly pulverize the soil dug out from the hole and use this soil, without any additions, to backfill around the tree. Add soil around the tree until the hole is half full. Then firm the soil to eliminate air pockets, but do not pack it tightly. Finish filling the hole, firm again and then water the tree thoroughly to settle it in.
- Generally, do not fertilize trees planted during the fall, although you can apply some slow-release fertilizer next spring. The use of a root stimulator solution is optional.
- Stake the tree if it is tall enough to be unstable; otherwise, staking is not necessary. If staking, drive two or three stakes firmly into the ground just beyond the root ball. Use strips of cloth or nylon stockings – or use wire covered with a piece of garden hose where it touches the trunk – tied to the stakes and then to the trunk of the tree. Leave the support in place no more than nine to 12 months.
- Keep the area 1 to 2 feet out from the trunk of a newly planted tree mulched and free from weeds and grass. This encourages the tree to establish faster by eliminating competition from grass roots. It also prevents lawn mowers and string trimmers from damaging the bark at the base of the tree which can cause stunting or death. The mulch should be 2 to 4 inches deep and pulled back slightly from the base of the trunk.

Checklist for September, October, November

1. Begin preparing beds for fall planting.
2. Take soil samples from landscape beds and submit to your parish LSU AgCenter Extension Service office for analysis. The cost is $10 per sample.
3. Fall is a great time to plant trees. If room is available in your landscape, plant a few native trees. Trees that provide good fall color in Louisiana include bald cypress, Nuttall oak, Shumard oak, cherrybark oak, flowering pear, Chinese pistachio, ginkgo, Japanese maple, sweet gum, sumac and hickory.
4. Plant spring-flowering bulbs in your gardens from late October through early December. Exceptions are tulips and hyacinths, which must be refrigerated and planted in late December or early January.
5. Garden mums make a great addition for fall color. Check at your local retail garden center for availability.
6. Watch azalea plantings for early fall infestations of lace bugs. Control with Orthene, horticultural oil sprays and other recommended insecticides.
7. Build a compost pile out of leaves, grass clippings and remains from your vegetable garden.
8. Divide Louisiana irises in September.
9. Many of the summer-blooming perennials are finished or finishing up their floral display for the year. Cut back the flower stalks and old faded flowers to keep the plants looking attractive.
10. October weather can be dry. Water plantings as needed. Pay special attention to any newly planted areas. It generally is best to water direct-seeded beds of flowers or vegetables lightly every day to make sure the seeds do not dry out.
11. Prune everblooming roses by early September.
12. Fall is an excellent time to plant many herbs in the garden. A few herb plants provide a lot of harvest, so don't plant more than you can use. Herbs to plant now include parsley, sage, thyme, dill, cilantro, rosemary, oregano, borage, fennel, nasturtium, French tarragon, chives, mint and catnip.

Dan Gill
Consumer Horticulturist

Louisiana Super Plants tough, beautiful

The Louisiana Super Plants program is a new educational and marketing campaign that highlights tough and beautiful plants that perform well in Louisiana landscapes.

Louisiana Super Plants have a proven track record and have gone through several years of university evaluations and observations. Louisiana Super Plants are "university tested and industry approved."

Each spring and fall LSU AgCenter horticulturists unveil a list of Louisiana Super Plants, evaluated and selected for their superior performance throughout the state of Louisiana. Wholesale nurseries are encouraged to grow and retail nurseries are encouraged to carry Louisiana Super Plants. That way, when you hear about these outstanding plants, you will be able to find them at your local nurseries. Home gardeners and professionals alike can benefit from using Louisiana Super Plants to ensure successful landscaping efforts.

Louisiana Super Plants for fall 2010

The Louisiana Super Plants announced for fall 2010 are:

Amazon Series Dianthus comes in three outstanding colors – 'Amazon Rose Magic,' 'Amazon Neon Purple' and 'Amazon Neon Cherry.' Excellent for bedding or cutting, planting is best done in the fall but can continue until early spring. Flowering can occur from fall to early summer.

Camelot Series Foxglove includes three excellent colors – 'Camelot Cream,' 'Camelot Rose' and 'Camelot Lavender.' This is the best foxglove for Louisiana so far, and it is notable for its large spikes of outward-facing, bell-shaped flowers. It is best planted in fall or late winter for flowering in April and May.

Shishi Gashira Camellia is a tried-and-true shrub grown reliably in Louisiana landscapes for many years. It does well in full sun to part shade. Terrific rose-pink flowers are produced from October to January on this compact, evergreen shrub that slowly grows to about 4-5 by 4-5 feet.

Dan Gill
Horticulturist



Amazon Rose Magic Dianthus



Shishi Gashira Camellia



Camelot Lavender Foxglove

Vegetable Gardening

Below are suggestions of vegetables you can plant now. Add them to an existing garden or start fresh.

September...

Beets, broccoli (transplants or seeds through September), Brussels sprouts (transplants or seeds), cabbage (transplants or seeds), Chinese cabbage (transplants or seeds), cauliflower (transplants or seeds), collards (transplants or seeds), endive, carrots, English peas, snow peas, garlic (late September), kohlrabi, lettuce, mustard, onions (seeds, late September), parsley, snap beans (early September), radishes, rutabaga, shallots, spinach, Swiss chard, turnips and kale.

October...

Cabbage, broccoli (transplants), mustard,* turnips, collards, kale, parsley, shallots, radishes, beets, spinach,* leaf lettuce, Chinese cabbage,* celery, onions, Swiss chard, garlic, carrots and endive.*

November...

Beets,* shallots, garlic,* Swiss chard, spinach, kale, radishes, mustard, carrots and turnips.

*Plant first part of the month.



For most gardeners, the most satisfying part of gardening is eating what was grown. Luckily, vegetables can be grown almost all year-round in Louisiana.

Gardeners often gear up for vegetable gardening in the spring and overlook planting a fall garden. Don't make this mistake! A few tips for a successful garden are:

- Remove all existing weeds (even the roots!) before you plant vegetables.
- Till or work the top 6-10 inches of soil.
- Make sure a hose will reach the garden. Irrigation is a must!
- Purchase fresh seed or transplants that haven't become root bound.

Crop Highlights

Onions (bulbing): Onion seed may be planted for transplants from mid-September until mid-October. Keep the soil moist because seed coats are hard. It may take two weeks for onion seed to germinate to a stand.

Onions can be transplanted into the garden from mid-December through January. You also may sow directly in the row where they are to mature in October.

Several drills of seed may be planted on one row. Leave 6 to 8 inches between drills. Pay special attention to weed control in direct-seeded onions. Control winter weeds before the onset of wet soils and cool weather.

Consider planting onion plants in black plastic mulch. The mulch controls weeds, enhances growth and keeps the onion bulbs cleaner.

Short-day varieties to plant:

Red: Red Creole C5 or Red Burgundy

White: Super Star Hybrid (AAS), Candy (golden) or Georgia Boy

Yellow: Granex 33, Texas Grano 1015Y, Nirvana, Savannah Sweet or Sweet Melody

Fertilize plants sparingly before planting. This will prevent excessive growth, which enhances premature seed stalk development or bolting. About 2 pounds to 3 pounds of 0-20-20, 7-21-21 or 8-24-24 per 100 feet of row are sufficient. Side-dress onions just before bulbing next spring. Several nitrogen side-dressings at two- to three-week intervals increase plant size and bulb size. (Follow same schedule for bulbing shallots. Choose Prisma.)

Green Shallots: Shallot sets can be planted any time in fall or winter. Replant several as you harvest by separating plants and transplanting some of them again. They'll continue to divide and make several more plants. By doing this, you can have shallots through spring. The largest shallot bulbs for sets are made by transplanting from mid-November to December.

Garlic: Separate garlic bulbs into individual cloves before planting in October. Several varieties, like Silverskin, are available, but sets may be difficult to find. Tahiti, or elephant garlic, is the largest and mildest. The Italian and Creole varieties are smaller and stronger. Check the Louisiana Department of Agriculture and Forestry Market Bulletin and the its website (http://www.ldaf.state.la.us/portal/News/MarketBulletinCurrent/tabid/165/Default.aspx) for possible sources of sets.

Plant cloves about 1 inch deep and 4 to 6 inches apart in the row. Several drills may be planted on one row. Allow 6 to 8 inches between drills. Fertilize before planting with 4 to 5 pounds of 8-24-24 per 100 feet of row. Side-dress with nitrogen after garlic is up and again in February and March just before bulb swell.

Lettuce: September is the best month to plant lettuce. Head and semi-head lettuce should be planted so that it is harvested before a hard frost. Side-dress three to four weeks after transplanting and again two to three weeks later.

Good varieties are:

Semi-head: Green Forest, Green Towers, Buttercrunch (AAS), Oak Leaf or Parris.

Leaf: Simpson Elite, Red Fire, Red Salad Bowl, Nevada or Sierra.

Head: Great Lakes, Ithaca, Mavrick, Summertime or Mighty Joe.

Lightly cover lettuce seed for best germination. For endive or escarole, choose Rufflo, Salad King or Full Heart.

Greens: Keep the soil moist. Avoid thick plantings of greens. A 3- to 4-inch spacing between plants is recommended. For weed control, Treflan can be incorporated before planting. Double drills may be planted on one row, allowing 10 to 12 inches between drills.

Broccoli and Cauliflower: Direct-seed or transplant through September. Space cauliflower about 12 to 18 inches apart and broccoli 6 to 12 inches apart. Both shallow-rooted crops respond to fairly high rates of fertilizer, 4 to 6 pounds of 8-8-8 or 3 to 4 pounds of 8-24-24 per 100 feet of row. Side-dress with about a pint of ammonium nitrate per 100 feet of row about two to four weeks after transplanting. Two to three added side-dressings at two-week intervals will increase yield.

Broccoli varieties recommended include Packman, Windsor, Diplomat, Patron and Gypsy.

Recommended early cauliflower hybrids are Snow Crown (A.A.S.), Majestic, Freedom and Cumberland. Candid Charm is a large-head, early hybrid that self-wraps. Good open-pollinated varieties include White Rock and Self Blanch (fall only).

Cabbage: Recommended varieties for fall and winter production are Platinum Dynasty, Bravo, Stonehead, Rio Verde, Silver Dynasty, Thunderhead, Emblem, Blue Vantage, Cheers and Vantage Point.

Chinese Cabbage: Chinese cabbage is an excellent crop for fall gardens. It may be used like lettuce. Seeds may be planted in September. Solid heads form 55 to 60 days after seeding.

English Peas and Snow Peas: Plant English peas, snow peas and other peas with edible pods in September. The key to success is to plant early enough so they bloom before frost and late enough so they aren't blooming when temperatures are too high.

Space peas 1 to 2 inches apart. About 2 to 4 ounces of seed will plant a 100-foot row. Between 70 and 80 days are required from planting until harvest. Staking or trellising peas, even the bush types, will help to increase the chance of success.

Spinach: Spinach requires a fertile, well-drained soil with a pH of 6.0 to 7.0. Apply 4 to 5 pounds of a complete fertilizer per 100 feet of row about two weeks before planting. Side-dress with 1 pound of ammonium nitrate per 100 feet of row about one month after seeding. This will keep it growing quickly, making it tender and improving quality. An additional side-dressing after harvest will improve yields on second cuttings.

Plant seeds about one-half inch deep, and thin plants to 1 to 3 inches apart in the row. Since seeds are slow to germinate, be sure to keep soil moist. Double drills may be planted on one row; allow 8 to 12 inches between drills.

Suggested varieties are Melody, Tyee, Hybrid 7, Smooth-Ballet and Tiger Cat.

Pumpkins and Winter Squash: Harvest pumpkins and winter squash after they have developed a hard rind and the appropriate color for their varieties. If the rind cannot be easily penetrated by the thumbnail, the fruit is mature. Leave about 3 inches of stem attached to the fruit. Stored in a cool, dry place (off the ground and floor, if possible), these cucurbits will keep well for several months.

Carrots: Direct-seed carrots from September on through the season. Form high, well-drained rows 20 inches apart. Thin to about 2 inches apart. Choose Danvers 126, Thumbelina and Purple Haze (All-America Selection). For sandy soils, use Apache, Choctaw, Big Sur, Maverick or Navaho.

Beets: Plant beets from the fall through the winter. Choose from Ruby Queen, Scarlet Supreme, Chariot and Solo.

Collards: For good collards, plant Blue Max, Champion, Top Bunch or Top Pick.

Kathryn Fontenot
Extension Vegetable Specialist



Pecan Trees

Don't forget to water your pecan trees

Although pecans appear to be more drought and heat tolerant than many crops, that doesn't mean they require less water than other horticultural tree crops.

Pecans require adequate water at different times of the growing season for good production. Water is necessary early in the season for normal shoot growth, leaf expansion and nutlet retention, since heat and drought can increase nut drop in late May and June. Water is required in midsummer for nut sizing and to help reduce water stage drop. But, by far, the most important time for pecan trees to be well watered is in late summer (August-September) when the kernel is developing and the shucks are forming abscission layers for normal shucksplit at nut maturity.

Lack of water in June and July typically results in small nuts, whereas similar conditions from mid-August through September result in poorly filled nuts. Pecans must have water during water stage, gel stage and kernel development period. Any stress on the tree in the late development stage can result in excessive fruit drop.

Not only does the nut need adequate water, but the foliage too. Late season leaf stress from water shortage is one of the main causes of shuck disorders, such as stick tights, stem end blight and sticky shuck.

Long-term drought stress can cause reduced crop set the following year, branch die-back and even tree death. Large nut size and heavy crop loads also can contribute to water stress. Weeds and grass consume water that could be going towards the pecan tree and crop.

Pecans require an average of 50-55 inches of water during the growing season, so pecan trees often need supplemental watering from May through October, with the month of September being especially critical.

Soil depth has a major influence on available soil water. Deep, well drained soils go a long way in allowing pecans to bear high yields of quality pecans year after year – the deeper the soil, the better. Shallow soils can grow pecans, but irrigation must be more frequent but not so much as to result in soil saturation with the loss of aeration. Pecan roots need air and water to stay healthy and productive.

Pecan trees extract the moisture they need from soil in the root zone daily during the growing season. Tree age plays an important role in water needs. Trees in established or mature orchards demand more water than do young, growing trees. The amount a tree withdraws may vary from a gallon or less for a young tree to more than 200 gallons per day for a fully mature tree.

Water requirements for a pecan tree differ during the season. Water demand at the beginning of the season is much less than in June and July, when temperatures are high, foliage is fully developed and pecan nuts are growing.

Understanding the basic principles of soil moisture storage, measurement and management is necessary for the efficient use of water for irrigated pecan trees and to reduce the pollution potential from runoff and deep percolation.

In general, soils are made up of mineral matter, organic matter, water and air. Mineral matter and organic matter are the solids in soil and may occupy 35 percent to 75 percent of the total soil volume. The remaining volume, or pore space, is occupied by air and water.

The size and total volume of pore space are a function of both soil texture and structure. Clay soils can hold a large amount of water because of the large surface areas of the individual clay particles and the large number of very small pore spaces. Sandy soils, on the other hand, have relatively small surface areas on the sand particles and contain a smaller number of pore spaces, which are larger in size and thus have a much lower water-holding capacity than clay soils.

Generally, coarse, sandy soils can store only about 0.5 inch of water per foot of depth. Silt loam soils can store more than five times that much, or 2.5 inches per foot of depth. Other soil types, including heavy clays, will fall in a range between 0.5 and 2.5 inches per foot of depth.

Organic matter percentage also influences water-holding capacity. As the percentage increases, the water-holding capacity increases because of the affinity organic matter has for water.

The first step in understanding the water needs of a pecan tree is knowing how much water can be stored in the root zone of the tree. If you are not sure of the water-holding capacity of your soil, contact your local Soil Conservation Service office for an evaluation. They can furnish you with a reliable estimate after a field visit or by using existing soil survey maps. Information on soil types and root zone depth of your trees will give a realistic amount of water that can be applied at any single irrigation.

Knowing the water-holding capacity of soils is important in determining both the amount and frequency of irrigation. When the soil is completely wet and then drained by the pull of gravity, the soil is considered at "field capacity." Generally, when a soil is at field capacity, half the pores are filled with water, and the plant can readily extract water from the soil.

Plants cannot use all of the water in soil, however. As water evaporates and is drawn out of soil by plants, the water content gradually declines until plants can no longer extract the small amount of remaining water held tightly to soil particles.

If your tree pulled all of the water it could out of the soil, then died, the soil would be at "permanent wilting point." There would still be water in the soil at this point, but it would look dusty dry. Although plants can withdraw water to the permanent wilting point, their growth usually decreases before signs of permanent wilting occur. In order to obtain good yields and growth, soil moisture

must be maintained above the wilting point.

Soil acts as a "vault" to store water for crop use. The deeper the soil you have, the larger the vault for storing water. Rain and irrigation water are deposits into the soil, while water evaporating from the soil and water used by the plants are withdrawals. A daily balance of these deposits and withdrawals will give the amount of water remaining in the soil profile.

The plant root zone is often viewed as a reservoir for these deposits and withdrawals. Irrigation is used to fill the soil reservoir or to bring the soil moisture content up to field capacity in order to store water for crop use. Thus, the depth of the root zone must be known to determine how much irrigation water is needed. Rooting depth is not constant; instead, it increases as a plant grows. In addition, many factors, such as high water tables, soil type changes in the soil profile, soil compaction, soil salinity and soil fertility, may restrict root development.

Generally, if your grass is wilted and turning brown, your trees are also under water stress. But just because your grass is green and growing doesn't mean your trees are not under water stress.

Many residential irrigation systems are set to run only a few minutes each day. This regime will keep the top few inches of the soil well watered, but it does little to replace water deeper in the soil profile. It would be of a greater benefit to your trees and shrubs to do a prolonged irrigation once or twice a week, which would move water deeper into the soil.

Pecan trees often have an active root zone of up to 3 feet deep, and water needs to be supplied to all of the roots. If you have pecan trees in your yard, check your irrigation schedule to be sure you are supplying enough water. And if you're not watering your trees, start irrigating as soon as possible. You will be amazed how much a little water can help your pecan crop.

Charlie Graham
Extension Pecan Specialist

Fall Lawns in Louisiana

Should I fertilize my lawn during the fall?

Louisiana usually stays warm well into the fall, and lawns continue to grow until nighttime temperatures dip into the 50s. Mow and water your lawn as needed to keep lawns healthy.

More than likely, however, it is time to put up your fertilizer spreader. Fertilizing warm-season grasses during the fall with high nitrogen (summer-type) fertilizers or winterizers containing nitrogen are not recommended for southern lawns. Stimulating fall growth of our warm-season turf with nitrogen leads to increased brown patch disease and winter kill.

If you need extra color on fall turf, apply foliar iron spray. The only fertilizer that can be applied in the fall is muriate of potash. Muriate of potash (0-0-60) may be applied in September or October to provide increased cold tolerance. If available in your area, apply muriate potash at 1 to 2 pounds per 1,000 square feet.

Get soil tested

Fall is the best time of the year to get your soil tested by the LSU AgCenter.

Soil testing really is the first step to a beautiful lawn next spring and is the best way to determine exactly what your lawn needs to become thick and healthy. If you haven't tested your soil in the past several years, do it now.

To test your soil, bring in 1 pint of soil to the LSU AgCenter Extension Service office in your parish. The pint should be a composite of soil samples taken from several 4-inch deep areas and mixed together.

The results will be sent to your home mailbox and/or e-mail in about two weeks. An LSU AgCenter extension agent can help you interpret the results of the soil sample. But, for example, if lime was called for in your soil test results, apply it in mid- to late fall or winter.

Weed management

Granular pre-emergence herbicides can help manage winter weeds when applied prior to weed germination.

These are the same herbicides used for pre-emergence crabgrass control in late winter and early spring. Pre-emergence herbicides containing pendimethalin (Scotts Halts), dithiopyr, (Hi-Yield Weed Stopper), benefin plus trifluralin (Green Light Crabgrass Preventer) provide good control of annual bluegrass, common chickweed and various other winter annuals prior to their emergence. Isoxaben (Green Light Portrait) provides good control of winter annual broadleaves. Isoxaben has no activity on germinating grasses, however, so consider applying one of the previously mentioned herbicides on the same lawn for a complete broad-spectrum, pre-emergence weed control program.

These herbicides should be applied mid- to late September and reapplied by mid-November. Water the herbicides into the lawn or apply just prior to rainfall. Make sure you use pre-emergence herbicides that do not contain nitrogen fertilizer because of potential for increased occurrence of brown patch disease.

Fall is brown patch disease season

Brown patch disease starts to appear in lawns as nighttime temperatures cool down below 70 F.

This fungal disease is very common in St. Augustine grass and centipede grass and appears as circular browned-out areas in various locations of the lawn. Brown patch disease can come and go all winter if weather is mild.

Treatments with a fungicide labeled for brown patch will minimize the damage caused by the disease. Usually two to three preventive applications work best when applied a couple of weeks apart starting in mid- to late September. Look for fungicides containing active ingredients such as propiconazole, thiophanate, triadimefon or myclobutanil.

Ron Strahan
Weed Scientist/Turfgrass Specialist

Growing Olives in Louisiana

The history of the olive tree can be traced back for centuries.

From its origin on what is today Turkey and Syria, the olive was spread to other parts of the Mediterranean basin in a very early period. The olive found conditions for its greatest cultivation in Italy and Spain.

Then it was the Spanish who spread the olive to America. Catholic missionaries spread the olive to Mexico and later to California, as well as to South America. Olives play a significant role in horticulture today in California, but that state produces less than 1 percent of the world's olives.

Climate is the most important limiting factor in the distribution of the olive in Louisiana and elsewhere. Temperature controls growth, reproduction and survival of the olive. Growth begins after mean temperatures warm to 70 degrees Fahrenheit in the spring and continues until temperatures drop below this point in the fall.

Unlike the fruit trees such as the peach, the olive does not set fruiting buds in the fall. Instead, the olive will only set flower buds after being exposed to cool night and warm day temperatures during the winter. This unique warm day/cool night exposure is essential for fruit bud development. Olives have a chilling requirement of 400 to 600 hours below 45 F.

The olive must experience cooler temperatures to produce fruit, but it will freeze from extreme cold. Although the olive is the most cold-hardy of the subtropical fruit trees, it will sustain damage to leaves and small stems at 17 F and more severe damage at 12 F. The tree can be killed to the ground with temperatures below 10 F. Mature trees can re-grow from underground parts following a severe freeze. Green fruit is damaged at about 28 F, but ripe fruit will withstand somewhat lower temperatures.

There are very few sites in Louisiana that meet the exacting climactic requirements for commercial production of olives. Extreme south Louisiana does not experience enough cool weather to set fruit on the olive. Fruiting may be sporadic in some regions, but the olive may be grown as an ornamental in these areas.

In north Louisiana, the frequency of freezing temperature may be too great to allow for cultivation of olives. Because very cold, dry air may sometimes invade most of the state during severe winters, damage to olives is a threat in many areas. Efforts must be taken to protect olive trees, especially young ones, from damage when severe cold is predicted.

Botanically, olives (*Olea europaea L.*) are a subtropical evergreen tree or shrub with opposite leaves. The leaves are lanceolate (lance-shaped), waxy green on top and grayish green on the bottom. Young bark is green, but older bark is gray. In the Mediterranean, olive trees are known to live for more than a thousand years. If the top is damaged, a new tree will sprout from underground parts.

Under the proper conditions, at about five years of age, olives will begin to bear the familiar olive fruit. Fruit is borne on panicles, or fruiting branches, arising from buds above the point where the leaves join the stem on the previous season's growth. The cream-colored flowers are very similar to those of the waxleaf ligustrum (privet), a member of the same botanical family (the Oleaceae) that is widely grown in Louisiana as an ornamental.

Two types of flowers arise on the tree: perfect and staminate. Staminate flowers contain only male parts; the female pistil is aborted. Only perfect flowers can become fruit. Bees and other insects play a minor role in olive pollination; wind moves most of the pollen from tree to tree. Most olive varieties are self-fertile, but increased production often results from cross-pollination.

Olives are the only member of the Oleaceae family to bear edible fruit. The fruit, a drupe like a peach, cannot be eaten fresh because of the presence of a bitter glucoside. Thus, olives must be processed to be served as food. They can either be processed for oil or processed with lye and salt to produce the canned or preserved table fruit. While fruit processed in California has almost all of the bitterness removed, those processed in the Mediterranean area often are left somewhat bitter.

Olives should not be confused with the Russian olive (*Elaeagnus angustifolia*) or the Anacahuita (*Cordia boissieri*), which is sometimes called the Texas or Mexican olive. Both of these plants belong to different botanical families. The olive, however, is related to the desert olive (*Forestiera* sp.) and the American wild olive (*Osmanthus* sp.). The fruits of these two "olives" are not edible.

Propagation

Olives can be propagated easily. There are a number of ways to propagate the plant.

Plants may be grown from seed, but a variety will not come true from seed. Seedling olives are sometimes used as rootstocks to which known varieties are grafted, Seeds also are used in breeding programs for the selection of new varieties. Seeds are cracked or treated with sulfuric acid to aid in germination, because the pits are very hard.

Most olives are grown on their own roots, however. Asexual propagation is from leafy cuttings, from larger stem cuttings or from suckers.

Soils

Olives have a wide adaptability with regard to soils. The olive will tolerate a variety from sands to clays with a pH range from 5.5 to 8.5. Olive trees have shallow root systems, so they do not need a deep soil, but it must be well-drained.

Water

Olives are drought-tolerant but grow best when they have sufficient water. Overwatering should be avoided. Plant olives in a site that's sunny, well drained and has fertile soil. Water regularly, but do not allow them to become waterlogged.

Fertilizer

Olives are extremely efficient at extracting nutrients from the soil, and nitrogen usually is the only element which must be applied.

Mature trees need from 1/2 to 2 pounds of actual nitrogen per year, depending on tree size. Deficiencies of potassium and boron are rare, but

possible. Fertilize in December to aid in fruit bud development and in the spring when new growth begins. Additional fertilizer may be added in the summer months if growth is poor.

Training

The tree should be trained to three or four main scaffold branches beginning at about 3 feet in height. A full canopy should be allowed to develop from the scaffold branches. Fruiting will take place in this shell of foliage.

Pruning

Pruning should be delayed until early spring. Because the tree does not go dormant, any increase in temperature after pruning will stimulate growth that might be damaged by freezing temperatures.

Olives are pruned by thinning out dead or otherwise unproductive wood. The plant should not be "topped." Topping causes the formation of numerous lateral branches and suckers so that a bush is produced.

Again, all cutting should be delayed until spring or summer.

Cultural Practices

In cold areas, olive trees can be mounded with soil up to about 1 foot on the trunk until they are about five years old.

Mound up the soil in late November, and remove it in late March. If possible, cover the foliage when temperatures of 17 F. or below threaten. If the tree is damaged by cold weather, wait until new growth appears in the late spring before removing dead or damaged parts.

Varieties

There is no firm information about what varieties will do best under Louisiana conditions.

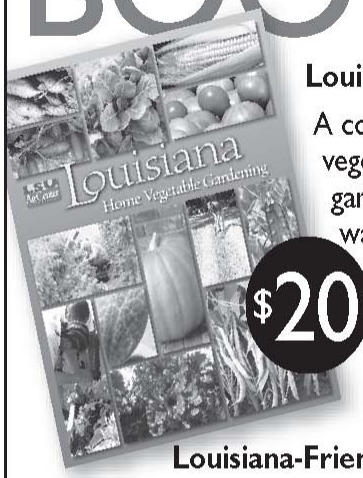
Because it is cold-hardy, 'Ascolano' may be a good choice as an ornamental under Louisiana conditions. 'Barouni' may be a good choice as a fruit tree, because it comes from a country which is warmer than the place of origin of the other varieties. Varieties for trial planting include: 'Ascolano' (most cold hardy), 'Barouni,' 'Manzanillo' (most popular cultivar in California for canning), 'Missiore,' 'Mission' and 'Sevillano'

Some varieties may require more cold temperatures than others to set fruit, and many Louisiana sites have less cold weather than most olive-producing sites.

David Himelrick
Fruit Specialist

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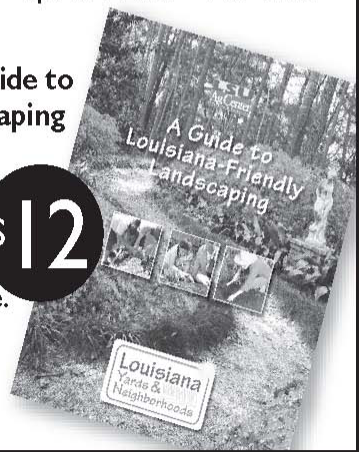
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