Texas Agricultural Extension Service
The Texas A&M University System

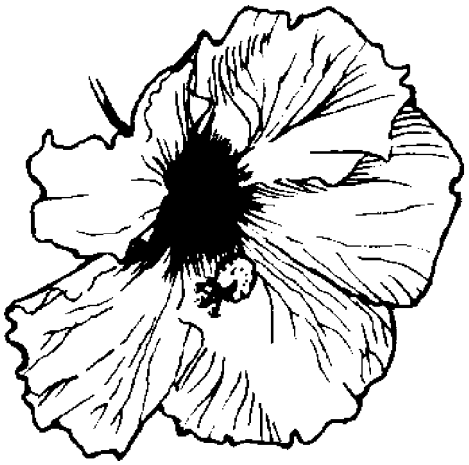
Horticultural Update

Plant of the Month . . . June

Dr. William C. Welch, Landscape Horticulturist
Texas A&M University, College Station, Texas

Giant Rose Mallow, *Hibiscus moscheutos*

The giant rose mallow has the largest flowers of any hardy perennial; some of the hybrids may be a foot across. Rich, moist soil and full sun bring the most vigorous growth, but mallows are very accommodating and will tolerate light shade and less desirable soils. Giant rose mallows will flower from seed the first year if started very early in the spring. Favorite cultivars may be rooted from cuttings during the growing season. Colors range from crimson, white, pink, rose, and colors in between.



Giant rose mallows are relatives of the native hibiscus found growing in the ditches of Louisiana and other Gulf South states. They are among the most spectacular and easily grown plants for use in the border.

Following the spring and summer growing seasons, the plants freeze back to the ground each fall. Old stems should be cut back to a height of several inches above the ground. New shoots emerge by mid-spring, and the plants quickly develop handsome mounds of foliage and flowers by early summer. Individual flowers last only a day, but each plant may flaunt several or more flowers at once. Numerous seedling selections such as 'Southern Belle', and 'Frisbee' are offered in seed catalogs. Few garden plants provide so much enjoyment for so little care. 'Lady Baltimore' flowers are an attractive pink, and 'Lord Baltimore' is a very large dark red. 'Moi Grande' is a huge flowering pink selected in San Antonio and available in some garden centers around the state. Selections such as these are all grown from cuttings.

June 1996

In this issue . . .

The Importance of Pollination and Fruit Set

*This article appeared in **Orange Ag**, newsletter of the Orange County Agricultural Extension Service, edited by Rebecca H. Parker, County Extension Agent*

Many people have a poor understanding of the importance of pollination on the development of the fruit portions of edible crops (tomatoes, cucumbers, melons, etc.)

Pollination is defined as the transfer of pollen from the anther to the stigma of the same or another flower. A generalized interpretation is frequently utilized in which pollination refers to both the pollen transfer and the sexual fertilization process. Once the pollen has been transferred, it must then germinate, develop, and deliver its genetic material to the ovule and effect fertilization. The fertilization and subsequent embryo development stimulate further growth of tissues associated with the ovule, or ovules, which leads to the development of the 'fruit'.

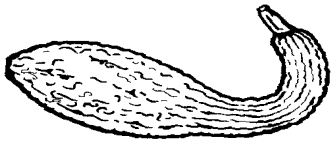
The terms ovule and ovary may need clarification. An ovule is a structure composed of those tissues which, following fertilization, develop into the seed. The ovary is defined as the basal portion of the pistil which contains the ovules or seeds. There are simple types of fruits with single ovaries containing a relatively small number of ovules. In those fruits, a few pollen grains may effect fertilization, and the fruits subsequently develop. Then there are more 'complex' fruits, such as tomatoes and watermelons, which have single ovaries but hundreds of ovules with the potential to develop into seeds.

A great deal of pollen is needed to insure fertilization of the ovules and to develop the seed potential. The development of the seed potential (pollination and fertilization) is important to the gardener in terms of final fruit quality (size and shape). The fertilized ovule (developing seed) exerts a physiological 'sphere of influence' on the tissues surrounding it in the developing fruit. Usually, in flowers having a large number of ovules, a certain number of them must be fertilized or the flower will abort.

When less than optimal pollination and fertilization occur, the developing fruit may be misshapen due to the lack of development of the tissues surrounding the unfertilized ovules. 'Bottleneck' watermelon is a good example of this phenomenon. If the watermelon is sliced lengthwise, it will be seen that the misshapen area of the fruit does not contain seeds. Lacking stimulation from the fertilized ovules (developing seeds), the tissues did not develop to their expected potential in the affected area.

The term 'fruit set' is used to designate the success or failure of the process leading up to the visual appearance of the fruit. The relative number of flowers that drop versus those that remain and develop into fruits is used to judge the 'fruit set'.

It is important to consider conditions that can be manipulated by the gardener. This may be as simple as limiting use of insecticides that may kill our best insect pollinators: bees. Proper cultural practices, following recommended fertilization, and maintaining a bee population enable the gardener to provide a climate for a good crop.



Beautiful Caladiums

This article appeared in Orange Ag, newsletter of the Orange County Extension Service, edited by Rebecca H. Parker, County Extension Agent

Home owners love to plant caladiums, especially in shady spots. The following tips might enable you to make the most out of an already beautiful landscape accent.

■ Select and plant only large, firm, disease-free tubers grown for this season, spacing them 8-10 inches apart for strap-leaf varieties, and 10-12 inches apart for standard fancy-leaf varieties. Do not plant until the soil and air temperatures are warm. A rule of thumb to go by is to plant tubers 6 weeks after the last killing frost. Planting too early in cool soils only contributes to tuber rot and delayed emergence.

■ Plant in beds that drain rapidly and are raised 3-6 inches above the existing grade. An excellent caladium bed on heavy clay soils would start with a level landscape; add 2 inches each of peat moss, ground bark, compost, and coarse sand; thoroughly till the layers together.

■ Provide a minimum of 4 hours morning sun or 50 percent filtered light throughout the day, and shade from the very hot afternoon sun. While caladiums will withstand the Texas heat, few are flameproof!

■ Plant with the bumpy or knobby side up approximately 1 inch deep from the top of the tuber. Planting too deeply may prevent the emergence of some leaves and limit proper growth through the season.

■ Mulch heavily with 3-4 inches of bark mulch and maintain it throughout the season.

■ When irrigation is needed, apply water thoroughly and deeply, and don't reapply until the soil is almost dry down to 1 inch deep. The best way to test moisture is on your hands and knees. Insert your finger through the mulch into the soil. Do not water unless needed; caladiums are not tolerant of waterlogged soil.

■ Supply adequate plant nutrition through the proper application of complete and balanced water-soluble fertilizers commonly used on seasonal color landscape plants. Geraniums, hanging baskets, and caladiums will receive all the nutrition needed with the use of a 20-20-20 analysis fertilizer when used according to label directions. Don't overfertilize!

■ Purchase caladium bulbs from retailers who have provided a storage place that will assure freshness of the bulbs. A cheap buy is usually just that . . . cheap!

Ornamental Plants in Texas Cemeteries

Dr. William C. Welch, Landscape Horticulturist
Texas A&M University, College Station, Texas

Ornamental plants have flourished in Texas cemeteries since the early days of the Republic. Mary Austin Holley, sister of Stephen F. Austin, wrote of her admiration of a nicely planted cemetery in her diary of May 1835, while visiting Boliver, brother Henry Austin's Brazos River plantation near Columbia: "Discovered the little burying ground with roses blooming on two fresh graves -- dropped there a tear . . . It is well chosen -- a little enclosure -- figs growing luxuriantly without, flowers blooming within." The roses referred to were probably 'Old Blush', an everblooming China rose very popular with early Texans.

Planting and maintaining durable roses, flowering shrubs, and perennials in our cemeteries is a tradition strongly rooted in Texas culture. This has been threatened in recent generations by the migration of families from rural to urban centers and 'perpetual care' cemeteries. Perpetual care cemeteries usually provide basic annual plantings, maintained by large-scale garden equipment which discourages all but the simplest planting schemes.

Where cemeteries have been maintained in the traditional manner, they have served as an important test ground for hardy plants. If ornamental plants can weather decades of relative neglect and still remain attractive and healthy, it is logical to expect them to thrive in our home gardens. With today's emphasis on water conservation and low-maintenance gardening, the 'time tested' plants found in older cemeteries can be a valuable source of plants and history. Following are a few of the roses, shrubs, and perennials most frequently found thriving in old Texas cemeteries. Many are available in nurseries specializing in antique roses, native and adapted perennials, and shrubs:

ROSES
'Old Blush'
'Archduke Charles'
'Lady Banks' (white & yellow)
'Cherokee Rose'
'Radiance'

SHRUBS
Punica granatum - Pomegranate
Prunus glandulosa - Flowering Almond
Spiraea thunbergii - Baby's Breath Spiraea
Thuja orientalis - Oriental Arborvitae
Lagerstroemia indica - Crape Myrtle
Nandina domestica - Nandina

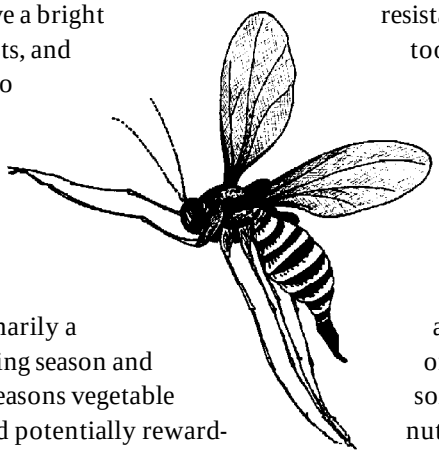
BULBS & PERENNIALS
Narcissus - Old forms such as 'Grand Primo' and 'Campernelle'
Crinum sp. - Old forms of Milk and Wine Lilies
Hemerocallis sp. - Daylilies
Salvia Greggi - Autumn Sage
Rhodophiala bifida - Oxblood Lily
Phlox paniculata - Summer Phlox
Oxalis crassipes - Oxalis
Hippeastrum x Johnsonii - Hardy Red Amaryllis
Leucojum aestivum - Summer Snowflake

Managing Garden Pests

Dr. Samuel D. Cotner, Head, Department of Horticulture,
Texas A&M University, College Station, Texas

Insects and diseases are without doubt the biggest obstacles to successful and productive gardening in Texas. Every year, literally millions of dollars worth of our state's garden and commercially-grown fruits and vegetables are lost due to the destructive feeding of insects and the rot and decay caused by diseases.

If you have been gardening in Texas for any length of time, chances are you have experienced serious, if not devastating, losses due to insects and diseases. Our great state seems to be inhabited with every insect and disease known to mankind -- plus a few others! You probably have experienced the feeling that thousands of insects have gathered in your back yard to gorge themselves on your garden vegetables. To make things worse, many insects seem to 'come with the seed' -- how else could they know about your emerging bean seedlings and new tomato plants? And if it's not hungry insects, just about the time your garden appears to have a bright and productive future, mildews, rusts, and blights seem to show up overnight to ruin your chances for a good crop of garden-fresh vegetables.



Because of the abundance of insects and diseases, vegetable gardening in Texas can best be described as a real challenge. It's primarily a challenge because of our long growing season and relatively mild winters -- the very reasons vegetable gardening in Texas is so popular and potentially rewarding. The challenge is real, but it can be overcome!

To many gardeners, the obvious way to meet this challenge is to have a good sprayer and the necessary pesticides to control commonly-occurring insects and diseases. Controlling pests with pesticides may indeed become necessary, and pesticides can be highly effective and completely safe if used properly. However, before resorting to pesticides, the first and most effective way to reduce losses caused by insects and diseases is prevention.

Prevention is really nothing more than common sense and sound, sensible gardening practices. Through continuous and methodical use of the following practices, many insect and disease problems can be greatly reduced, if not completely overcome.

■ **Smart Purchasing.** When purchasing seed and transplants, make absolutely certain you do not take problems home with you. Buy only seed produced for the current gardening season that has been treated with fungicides to prevent seed rot and seedling diseases. When selecting transplants, look for those that appear healthy, have good color, and are free of holes in the leaves or spots/lesions on the stems and foliage, which could indicate the presence of insects or diseases.

■ **Use Resistant Varieties.** Always plant resistant, recommended varieties in your garden. Plant breeders have done an excellent job in recent years developing high-yield, top-quality varieties that have resistance to many common diseases. Unfortunately, developing resistance to insects is much more difficult, but this too will one day be a reality. Check with your local county Extension office or reputable nurseryman for the best varieties to plant in your garden.

■ **Proper Soil Preparation.** Proper preparation of your garden soil will significantly help you prevent losses due to insects and diseases. Working in liberal amounts of organic matter will improve drainage of heavy soils and help sandy soils hold moisture and nutrients. When tilling or spading the soil, be on the lookout for grub worms, wireworms, and other soil insects. If found in high numbers, application of a recommended soil insecticide prior to planting will prevent serious problems in the future. Summer cultivation will also prove helpful (see next page).

■ **Adequate Fertilization.** Test your garden soil to determine its pH and the proper amount of fertilizer to apply. Vegetables grown in soils that are too acidic or too alkaline will grow poorly or not at all, making them highly susceptible to problems. The right amount of nutrients in the soil will result in healthy, vigorous plants

(Continued on Next Page)

that are less affected by insects and diseases. However, use of too much fertilizer can result in rank-growing, highly succulent plants, and may encourage insect and disease problems.

■ **Crop Rotation.** If your garden has enough space, avoid planting the same vegetables or members of the same vegetable family in the same location for at least two to three years. By rotating vegetables from one location in your garden to another, many soilborne insects and disease problems can be avoided.

■ **Proper Spacing.** Pay close attention to guidelines regarding proper spacing between rows and between plants in the row. Crowded growing conditions result in slow drying and poor air movement, and encourage disease development. Also, if pesticide treatments become necessary, crowded growing conditions make proper application and thorough coverage almost impossible to achieve.

■ **Vertical Gardening.** Grow plants upright whenever possible, using cages, trellises, fences, and other types of props. This helps to prevent foliage and fruit from contacting the soil, thereby reducing losses due to soil-related pests. If pesticide use becomes necessary, better control with fewer applications is possible with vertically-grown plants. Tomatoes, climbing beans and peas, and several members of the cucurbit family are some of the vegetables well suited to vertical gardening.

■ **Weed Control.** Provide early and complete weed control in your garden by mulching, shallow cultivation, or hand removal. Weeds can be a source of inoculum for diseases, and often harbor insects that cause considerable damage by feeding or transmitting diseases. If practical, control weeds in the vicinity of your garden for the same reasons.

■ **Garden Sanitation.** Garden cleanup is an essential part of insect and disease prevention. During the growing season, remove any odd-looking, stunted, or sickly plants as soon as possible. Chances are that such plants will never be productive, and may very well be infected with viruses, other diseases, and insects that will infect healthy plants in your garden. Judicious removal of foliage that appears damaged by diseases or insects will also help prevent spread. Do not place 'suspicious' plants or foliage in your compost pile, for obvious reasons.

■ **Summer Tilling.** If possible and practical, consider leaving part or all of your garden ' fallow' or unplanted during the summer. Tilling or spading the soil occasionally in the summer will expose nematodes, insects and their eggs to the hot, dry sun and high temperatures, effectively reducing their numbers.

■ **Proper Watering.** ***When you water*** is much more important than ***how you apply water*** in your garden. Water when the soil is relatively dry an inch or two beneath the surface, not when plants wilt. Plants wilt for many reasons -- insects, diseases, excessive fertilization, as well as too much water! If possible, water in the morning to allow the foliage to dry before the onset of cooler nighttime temperatures. Also, avoid working in your garden when the foliage is wet, to help prevent the spread of diseases from one plant to another.

■ **Timely Harvest.** Never allow over-mature produce to remain on your plants or nonproductive plants to remain in your garden. Harvest all vegetables as they mature. Pull and discard nonproductive plants, as they can serve as hosts for diseases and as breeding places for insects.

In addition to these guidelines, your 'shadow' in the garden on a regular and timely basis is perhaps the best way to prevent insect and disease problems. Be observant and look for the beginning of possible problems. A hand lens may prove especially useful. Look for webbing, egg masses, individual insects, leaves with spots or lesions, and any other signs of insects and disease. Remove and discard if found. Try to detect and remedy simple problems before they become serious problems.

Sturdy Plants for Texas Landscapes

Dr. William C. Welch, Landscape Horticulturist
Texas A&M University, College Station, Texas

In your home landscape plan, consider trees, shrubs, and annuals that are tough enough to withstand heat, drought, and pollution. Fortunately, Texans may consider any of a number of plants that meet these requirements.

For home owners who are not blessed with the proverbial 'green thumb', success can probably be found with cannas. Cannas grow quickly from tubers available now at many nurseries. New dwarf varieties are especially appropriate for container culture, and provide brilliant splashes of color during hot weather. The large banana-like leaves are also handsome.

A list of hardy, sun-loving summer annuals that can be grown from seed planted in the spring includes zinnias, marigolds, periwinkles, four-o'clocks, cleome, portulaca, gloriosa, daisies, globe amaranth, nasturtiums, and balsam.

For shady spots, impatiens are hard to beat, with their brightly colored flowers against dark green foliage. They can be grown from seed or cuttings. Gardeners looking for a quick effect will probably find blooming-size plants readily available.

Castor beans can provide huge masses of tropical foliage in green, bronze, or purple with a minimum of effort. Caution should be used, however, since the plant is poisonous.

Two vines that will grow practically anywhere are moonflowers and morning glories. Both grow and flower quickly from seed. Moonflowers offer a delicious fragrance during the night while the blossoms are open.

Trees do a tremendous job of making life more attractive and comfortable. Trees instill pride in citizens of a community and demonstrate a feeling of continuity with the past and anticipation for the future. Unfortunately, in our haste for so-called 'quick shade', too many poor-quality trees are planted. Selecting the right tree for the right location is worth considerable thought. Some slow-growing trees can be 'hurried up' with proper care. For instance, southern live oaks, Shumard oaks, and Chinese pistache will grow moderately fast if good conditions are provided.

Crape myrtle and ornamental pear are long-lived, handsome, and easily grown in less-than-ideal conditions. Cedar elms provide dense shade with minimum care and thrive in a wide range of environments.

The Mexican flowering plum is an excellent small native-Texas tree that is seldom used. It produces an abundance of fragrant white flowers in early spring, and the small plums make an excellent jelly.

With increasing land costs, home owners have been forced to smaller properties and, therefore, have a need for more privacy. Screen plantings provide some of this desired privacy; plants for screening might include Japanese yew (*Podocarpus*), Burford holly, American holly, flowering pomegranate, primrose jasmine, waxleaf ligustrum, oleander, and nandina. In screen plantings, select a plant that can be kept to proper size with a minimum of pruning.

There are some measures a gardener can take to enhance the chances for survival of plants grown under less ideal conditions. Soils should be made sufficiently porous to allow leaching of harmful pollutants when rains or waterings occur. During hot and smoggy periods, it is wise to hose off plants with fresh water at fairly frequent intervals. Small but frequent applications of fertilizer are also beneficial.

☑ Garden Checklist for June

Dr. William C. Welch, Landscape Horticulturist
Texas A&M University, College Station, Texas

☑ Take a critical look at your landscape while at the height of summer development. Make notes of how you think it can be better arranged, plants that need replacement, overgrown plants that need to be removed, and possible activity areas that can be enjoyed by family members.

☑ Check for insects and diseases. Spider mites can be especially troublesome at this time. Select a chemical or organic control or use insecticidal soap.

☑ During the summer, soil moisture becomes extremely important and essential for good plant production. Because continual watering is oftentimes costly and time consuming, it pays to conserve the moisture around plants. This is best done by mulching. A good mulch will retain valuable moisture needed for plant growth, and improve overall gardening success. Mulches are usually applied 2-6 inches deep, depending on the material used. In general, the coarser the material, the deeper the mulch. For example, a 2-inch layer of cottonseed hulls will have about the same mulching effect as 6 inches of oat straw or 4 inches of coastal Bermuda hay.

☑ There is still time to plant some of the colorful, heat-tolerant summer annuals. You can direct-seed zinnias and portulaca, and purchase plants of periwinkle, salvia, marigold, and purslane. Be sure to water transplants as needed until roots become established.

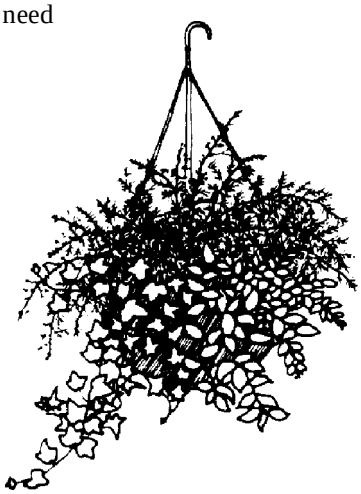
☑ Removing faded flowers from plants before they set seed will keep them growing and producing more flowers. A light application of fertilizer every 4-6 weeks will also be helpful.

☑ House plants can be moved out of doors this month. Sink the pots in a cool, shaded garden bed to prevent them from drying out so quickly. Water pots, container plants, and hanging baskets often. Monthly feedings of house plant fertilizer will encourage continued growth.

☑ Now is the time to plan for next spring. Consider digging and dividing any crowded spring bulbs. Once the bulbs have matured and the foliage has turned brown, it is time to spade them up and thin out the stand. Crowded bulbs produce fewer and smaller blooms. They usually need thinning every 3-4 years.

☑ June is the time to select daylily varieties as they reach their peak of bloom.

☑ Fertilize rose beds every 4-6 weeks. Apply small amounts of an organic or chemical fertilizer immediately after a flush of bloom, or every 4-6 weeks.



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