

THUMBNAIL GUIDE FOR NEW GARDENERS

IN GALVESTON COUNTY



SPRING



SUMMER



FALL



WINTER

 **AgriLIFE EXTENSION**
Texas A&M System

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Galveston County Master Gardener Association
GALVESTON COUNTY EXTENSION OFFICE

THE FRONT COVER

Just like children, landscapes create a life of their own as seen through the transition of seasons shown on the cover. Becoming aware of the subtle changes, especially by photographing them, brings you an awareness *of* the changes. We hope you will be able to affect your desired changes with your plants because of the recommendations in this booklet. *These photos were collected by one of our Master Gardeners who photographs several important areas of her landscape on a monthly basis.*

PHOTO CREDIT and INFORMATION

The source of all photos in this book is from the Galveston County Master Gardener Digital Photo Library, usually photographed in our Master Gardeners' home landscapes. This is another example of committed Master Gardeners sharing both their gardening successes and problems. We are also proud that this publication was conceived, researched and written by an enthusiastic group of new Master Gardeners, listed on the inside cover.

We would also like to acknowledge those master gardeners who photographs are used in the booklet:

Herman Auer, class of 1983
Sandra Devall, class of 1998
Andrea Hashke, class of 2000
Lola Thomas, class of 1998
Shan Revak, class of 2004
Anna Wygrys, class of 1993



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By

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*Educational programs conducted
by Texas AgriLife Extension Service serve people of all ages
regardless of socioeconomic level, race, color, sex, religion, disability or national origin.*

*Appreciation is extended to Dr. William M. Johnson,
Galveston County Extension Agent–Horticulture,
for his encouragement and leadership.*



*Appreciation is also extended to members
of the Galveston County Commissioners Court
for their support of our Master Gardener Volunteer Program.*



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INTRODUCTION

Welcome to our publication. Our purpose is to provide basic “getting started” information to novice gardeners and new county residents. For further information, we encourage you visit our website: <http://aggie-horticulture.tamu.edu/galveston/index.htm>. We also welcome visits and phone calls to the Texas AgriLife Extension Service, Galveston County Office.

The information contained in this quick reference guide was prepared by Master Gardeners who are home gardeners also. Master Gardeners enjoy the challenges and benefits derived from hands-on experience and have a strong desire to share their successes and solutions. Many of the issues and problems in this publication have frequently been addressed on the Master Gardener’s Hotline. Our hope is that this information will serve as a good beginning to a lifelong gardening adventure.

Galveston County residents plan their gardens according to twelve “mini-seasons;” the seasons are further defined into early, mid and late periods. In fact, we pride ourselves on having a green landscape twelve months of the year. The typically mild winters in Galveston County afford gardeners opportunities to experiment with exotic tropical plant species, as well as fruit and citrus varieties. Throughout the book, seasonal changes are color-coded as shown below.

SPRING	SUMMER	FALL	WINTER
Early Spring Feb. 15 - March 15	Early Summer May 21- June 15	Early Fall Oct. 1 - Oct. 15	Early Winter Dec. 15 - Jan. 15
Mid Spring March 16 - April 20	Mid Summer June 16 - June 30	Mid Fall Oct. 16 - Nov. 30	Mid Winter Jan. 16 - Jan. 31
Late Spring April 21 - May 20	Late Summer July 1 - Sept. 30	Late Fall Dec. 1 - Dec. 14	Late Winter Feb. 1 - Feb. 14

CHAPTER ONE

How, What, and When to Grow



A garden in the Gulf Coast area will be a year-round pleasure with your family and friends GCMGA

Galveston County is located in the Texas Upper Gulf Coast growing region which is at the southern edge of plant hardiness Zone 9. Our winters are typically mild which means that plants capable of withstanding 20 to 30 degrees Fahrenheit can be expected to survive here. Our winter lows seldom dip below the freezing point.

Climate

Summer temperatures are hot with June through September the most trying months for Upper Gulf Coast gardeners. Cool weather plants cannot survive our prolonged summer heat so we plant them in the fall instead.

Annual rainfall can vary considerably, though we normally can expect 44 inches, with intermittent dry spells in the summer (*Table 1-1*). Supplemental watering is essential for the survival of most landscape plants, lawns, and gardens. Throughout this publication, reference will be made to the terms, full sun, part shade, and shade.

Full sun. The plant described requiring direct sunlight.

Part shade. A plant that can tolerate less intense morning sun and heat, but likes a break from the sweltering afternoon sun, is described as preferring part shade.

Shade. A plant that will not perform well in direct sunlight, will be described as one requiring shade, or shade tolerant.

Soil

Our soil has the dubious reputation of being shallow. But our sticky gumbo soil can be improved with additions of organic materials such as compost, peat moss, shredded pine bark, etc. The majority of our soils are slightly alkaline. Our average soil pH range is 7.0 to 7.5 (*a soil pH of 7.0 is neutral*), which can affect the availability of plant nutrients, especially iron and phosphorus. Acid-loving plants such as azaleas, camellias, and gardenias usually need periodic applications of soil acidifiers (*products containing sulfur*) to keep them looking their best.

1-1 Typical Temperatures and Rainfall by Month

JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
62/43	65/45	75/53	79/61	85/67	90/73	92/75	92/75	88/71	81/61	72/53	65/45
3.2"	2.8"	2.4"	2.5"	4.4"	5.3"	3.9"	3.8"	4.9"	3.4"	3.6"	3.0"

Average Date of First 32 Degree Freeze in the Fall – December 1

Average Date of Last 32 Degree Freeze in the Spring – March 1



Raised beds provide good soil drainage, as well as easier access GCMGA



Plan outdoor space for dining and entertaining GCMGA

Our water table is high, so good drainage is essential for any planting. Raised beds accomplish this for areas with poor soil drainage. Use bricks, landscape timbers, rocks, or low-growing border plants to retain 6 to 8 inches of soil. If you decide on a solid border, be certain to leave small gaps for water to drain from the bed.

Finally, deciding what to plant and how to maintain it once it is in the ground! This thumbnail guide will provide a good start with planting, fertilizing, pruning, and other maintenance recommendations for every season. And if the answers you need are not in this book, we have referenced materials published by Texas AgriLife Extension Service for additional information.

EARLY SPRING: FEBRUARY 15 – MARCH 15

Lawns

Spring through early summer are the best seasons to establish a warm-season grass lawn. When selecting a grass variety for your Upper Gulf Coast area lawn, consider:

- amount of sun versus shade the grass will receive
- how the grassy area will be used
- time and money for irrigation
- time and money for planting and maintenance

St. Augustine is probably the grass variety most often used for lawns in southeast Texas. One advantage St. Augustine grass has over other turf grasses is that it will tolerate moderate shade as well as full sun. In addition, it spreads by aboveground runners and is easier to keep it out of flowerbeds and gardens (*Table 1-2*).

St. Augustine grass has its disadvantages. It is susceptible to certain diseases such as brown patch and St. Augustine decline, as well as leaf spot, and it can also be subject to attack by chinch bugs and white grubs.

While there is no such thing as a perfect lawn grass, talking to neighbors who maintain attractive yards and consulting with local nurseries may help in making the selection of a lawn grass easier.

1-2 A Comparison of Grass Varieties

GRASS VARIETY	ESTABLISHED FROM	WHEN TO PLANT	DROUGHT TOLERANCE
St. Augustine	sprigs, sod mats or 4" blocks	spring, early summer, fall	requires more water than Bermuda to survive
Bermudagrass	seed, sprigs, or sod mats	spring, early summer	needs water to stay green, invasive to beds
Zoysiagrass	sod mats or 2" blocks	spring, early summer, fall	least tolerant to drought

PLANTING GRASS

Once you have determined which variety of grass to plant, you will want to have your soil tested to determine what nutrients may need to be added to grow a vigorous lawn. The Texas AgriLife Extension Service - Galveston County Office can provide instructions as well as a container, for collecting and mailing soil samples to the Soil Testing Laboratory at Texas A&M System.

The basis steps for preparing to plant a new lawn are:

1. Remove all debris.
2. Add organic matter and thoroughly blend into the top 4 to 6 inches of soil.
3. Grade the area to slope gradually away from the house so water will drain.
4. Based on the results of soil testing done by the Texas A&M lab or a commercial lab, add fertilizer and thoroughly till it into the soil.
5. Grade once again to smooth planting area and rid it of dirt clods and large stones.
6. Plant grass by means of sowing seed, planting sprigs or plugs, or laying solid blocks of grass sod end to end.
7. Water frequently and lightly as may be needed until the new grass has established roots.
8. Once the grass has 2 to 4 inches of new growth, it can be mowed. Remove no more than one-third of its total growth as measured from the soil line to the top growth layer of a lawn.
9. Lightly fertilize your new lawn once a month for 3 months with a complete fertilizer (*such as 15-5-10*) and water thoroughly after each application.

Contact the Extension Office to request related publications:

B-5088, L-1372, L-1533, L-1865, or L-1889



The lawn of our dreams GCMGA



Broccoli produces well in our area GCMGA



Carrots ready for the salad bowl GCMGA



Tomatoes should be started from transplants GCMGA

Vegetables

Vegetable gardening along the Upper Gulf Coast comes with its challenges. First, there's the soil. It's typically gummy and can be difficult to till. Soil augmentation is a must. Daytime temperatures increasingly become on the very warm side and rainfall can be very heavy at times. And of course there are the insects and diseases.

With all that going against us, why do we continue to garden? Well, if you're reading this publication, you're most likely one of the many who will not be denied the satisfaction of enjoying home-grown vegetables from your garden.

We do have two outstanding advantages: gardeners can grow a diverse variety of vegetables and produce vegetables all year round. Considerations for what vegetables might include: size of mature plant, whether or not it is viny, and suitability of a variety to our area.

Just a reminder - the average frost-free date for our area is March 1.

PLANTING VEGETABLES

The following is a good rule of thumb for determining garden size: a 20 by 20 foot garden plot will feed a family of four several different varieties of vegetables.

The ideal garden is exposed to full sunlight at least six hours a day and has fertile, well-draining soil. The reality is that most of our soils have to be modified to provide the good drainage and soil fertility necessary to grow vegetables.

The first step in planning your garden should be to have your soil tested. Your local office of Texas Extension Service can provide you with instructions and a packet for submitting soil samples to the Texas A&M System Soil Testing Laboratory.

If the soil consists of heavy clay, adding 1 to 2 inches of clean sand and 2 to 3 inches of organic matter, such as compost, dried grass clippings, shredded pine bark, to the garden's top soil can be very beneficial. Sandy soils also benefit from the addition of organic matter. This step should be done in late winter or early spring, if possible. Turn the garden soil to a depth of 8 to 10 inches periodically before planting, and break up any large dirt clods.

Based on the recommendations provided by the soil lab at Texas A&M System, apply fertilizer, either by hand or with a spreader, a few days before planting and work the soil thoroughly to mix in the fertilizer.

Vegetable transplants available from nurseries and garden centers, and some feed stores are recommended for tomato, pepper and eggplant production to provide for earlier harvesting. When shopping for transplants (particularly tomatoes) purchase disease resistant varieties when available. Just look for the letter or letters "V" (*verticillium wilt resistance*), "F" (*fusarium wilt resistance*), and/or "N" (*root-knot nematode resistance*) after the plant variety name.



1-3 Suitable Vegetable Varieties for Early Spring

VEGETABLE	SUN	MATURITY RATE	HEIGHT
Beans, snap bush	full	30-60 days	1.5'
Beans, snap pole	full	30-60 days	6.0'
Beans, lima bush	full	60-80 days	1.5'
Beans, lima pole	full	60-80 days	6.0'
Beets	sun/pt. shade	30-60 days	1.5'
Broccoli (transplant)	full	60-80 days	3.0'
Cabbage (transplant)	sun/pt. shade	60-80 days	1.5'
Collards	sun/pt. shade	30-60 days	2.0'
Corn	full	70-90 days	6.0'
Cucumber	full	60-80 days	1.0'
Eggplant (transplant)	full	80 days or more	3.0'
Kohlrabi	full	60-80 days	1.5'
Lettuce	sun/pt. shade	30-60 days	1.0'
Mustard	sun/pt. shade	30-60 days	1.5'
Peas, Southern	full	60-80 days	2.5'
Pepper (transplant)	full	60-80 days	3.0'
Radish	sun/pt. shade	30-60 days	.5'
Squash, summer	full	30-60 days	3.0'
Tomato (transplant)	full	60-80 days or more	4.0'
Turnip	sun/pt. shade	30-60 days	1.5'
Turnip Greens	sun/pt. shade	30-60 days	1.5'

Some transplanted vegetables, such as tomatoes and peppers, also benefit from a transplant starter solution.

For vegetables grown from direct seeding, the general rule is to cover the seed two to three times the seed's widest measurement. Plant more seeds than you expect to harvest, to ensure adequate germination. However, be sure to thin them early. For specific instructions, refer to final plant spacing information provided on the seed packet.

After planting, gently water the soil thoroughly to penetrate to a depth of 6 inches. Your garden will require at least 1 inch of moisture a week. If watering is necessary to meet this requirement, do so in the morning so that plant foliage has ample time to dry off during the daylight hours.

To conserve soil moisture, reduce weed growth, and manage soil temperature, apply approximately 1 to 2 inches of organic mulch to the soil surface. Mulch can consist of shredded pine bark, leaves, straw, dried grass clippings, or composted materials.

*Contact the Extension Office to request related publications:
B-1139, GC-104, C-125, L-1450, L-1576, L-1585, or L-1594*



Seedlings must be thinned early GCMGA



Sun-drenched oregano GCMGA

Herbs

Generally, when a reference is made to annuals, biennials, and perennials, the discussion is about flowers. However, herbs are also characterized by these descriptions.

Annuals are plants that complete their entire life cycle in one growing season. Some annuals live several seasons in this climate.

Biennials are plants that develop leaves during the first season, remain green through the first winter, then form flowers, fruit, and seed during the second and final season.

Perennials typically live several years and produce flowers and seeds each year once the plant has reached maturity.

Herbs which have long been used for medicinal, ornamental, and culinary purposes, are easy to grow year-round with our mild winters. They are compact in size and need very little care, as long as they are planted in well-drained soil. Most herbs can easily be grown in window boxes, containers, or garden soil.

Harvesting. Most herbs can be used either freshly picked or dried. To harvest, carefully remove the leaves by pinching or cutting them off at the stem. Cutting from the top will encourage new growth and prevent early seeding.

Drying. The best way to dry herbs is in a cool, dark room. Hang the herbs in loosely tied bundles in a well-ventilated room or spread the branches on a screen or cheesecloth. To keep dust off, use a clean, white cloth that allows moisture to pass through.

Storage. After the herbs are thoroughly dried, seal them in airtight containers in a cool, dark location. Excessive moisture can cause mold and mildew. Store leaves either pulverized or whole, depending on the intended use.

*Contact the Extension Office to request related publications:
GC-109, GC-110, GC-126, L-2242, or UC-025*

1-4 Culinary Herbs for Early Spring

NAME	SUN	SIZE
ANNUALS _____		
Basil	full	20-24"
Coriander	full	36"
Dill	Sun/pt. shade	24-36"
Fennel	Sun/pt. shade	36"
Parsley	Sun/pt. shade	5-6"
PERENNIALS _____		
Bay	Sun/pt. shade	3-6'
Chives	Sun/shade	12"
Oregano	Sun/pt. shade	24"
Rosemary	Sun/pt. shade	36"
Sage	Sun/pt. shade	18"
Tarragon	full	24"
Thyme	full	8-12"





1-5 Annuals and Perennials for Early Spring

PLANT	SUN	FLOWER COLOR	HEIGHT
ANNUALS _____			
Petunia	full	rainbow colors	18-24"
Impatiens	sun/pt. shade	pink, orange, white, purple	12-24"
Begonias	sun/pt. shade	white, lt. pink, coral	12-18"
Calendula	sun/pt. shade	yellow, lt. orange	8-10"
Coleus	sun/pt. shade	green, dk. pink, red	12-18"
Dianthus	sun/pt. shade	pink, white, red, carmine, salmon	3-8"
PERENNIALS _____			
Louisiana Phlox	full	purple	8-10"
Osteospermum	full	white, yellow, purple	18-24"
Verbena	full	pink, purple, red, salmon, white	6-8"
Salvia	full	dk. blue, purple, red, coral, white	12-24"
Scabiosa	full	lavender-blue	12-18"
BULBS _____			
Lily of the Nile	full	lt. blue, dk. blue	18-24"
Daylily	sun/pt. shade	rainbow colors	12-24"
Calla Lily	sun/pt. shade	cream, lt. yellow, pink	24-30"
Gladiolus	full	rainbow colors	36-48"
Amaryllis	full	white, red, pink	18-24"

Flowers

Cool season flowers are generally at the peak of their bloom in early spring. You may wish to wait until late spring to plant annuals that will perform until fall. However, if your cool season flowers are looking tired, you may simply wish to enhance them (*Table 1-5*).

*Contact the Extension Office to request related publication:
GC-113*

MID-SPRING: MARCH 16 - APRIL 20

Vegetables

Mid-spring is not too late to plant beans (wax bush, snap bush, lima pole, and snap pole), corn, cucumber, southern peas, and peppers. Mid-April is also the ideal time to plant okra since okra is a warm-season plant and does not tolerate "cold feet." In addition, April and early May are warm enough that additional vegetable varieties can be added to the garden (*Table 1-6*).

As you plant your vegetable garden, plant slower growing vegetables together, out of the way of earlier maturing plants, so that they won't be damaged when harvesting begins.

By planting taller crops, such as corn, okra, tomatoes, and pole beans, on the north side of the garden, they will not block the sun from shorter plants.



Potted pink petunias GCMGA



*Okra provides attractive flowers and tasty meals
GCMGA*

LATE SPRING: APRIL 21 - MAY 20

Flowers

Late spring is when the cool season flowers begin to fade due to rapidly warming days. May and June are also busy gardening months as the cool season flowers are cleaned out of the beds and new mulch or compost is added.

Before you shop for beautiful flowers to brighten your borders, consider drawing a plan showing plant placement. Know how much sun the planting site receives, the size of the bed, and the colors you wish to use. Group cool colors such as white, pink, blue, purple, and red or warm colors such as yellow and orange because they compliment one another. For longer-lasting summer color, look for heat tolerant annuals and perennials (*Table 1-7*).

EARLY SUMMER: MAY 21 - JUNE 15

Flowers

By this time, flowering plant selections at your local nursery have dwindled to only the most heat-hardy. But there is still some time to fill out any vacant spots in your beds.

Caladiums, in their cooling shades of white, green, and red, can be added at the back of a border, particularly if afternoon shade is available.

Most ginger varieties also love the warm, muggy days of summer. Gingers are low maintenance and some feature large dramatic foliage, especially the variegated ginger.

Ornamental grasses, such as purple fountain grass, can provide a striking backdrop for antique rose varieties, particularly in drier areas of the garden.

Elephant ears, cannas, angel's trumpets, yellow bells, and hibiscus all perform reliably in the heat of July, August, and early September without making too many demands on the gardener (*Table 1-7*).

EARLY FALL: OCTOBER 1 - OCTOBER 15

Flowers

September and early October are typically still warm along the Upper Gulf Coast. Some heat-tolerant summer blooms such as portulaca, lantana, sage, and verbena, are still going strong. But if your impatiens, begonias, and geraniums have faded, you may want to fill in the gaps with some varieties that can take the warm days and gradually cooling nights:

Before planting your fall color, refresh your beds with some organic material, such as compost, working it into the soil to loosen up any existing clay.

As you consider what to plant, remember that white, pink, lavender, purple, and blue work well together and can make the garden appear larger because they are cool colors. Warm colors such as red, orange, and yellow spice up a garden and can actually make the space seem smaller and closer (*Table 1-8*).



Yellow bells are tolerant of high temperatures
GCMGA



Stunning bloom of the passionflower vine GCMGA



Heat loving zinnias GCMGA



Caladiums bring a summer of color to shady areas
GCMGA



1-6 Vegetables for Late Spring

VEGETABLE	SUN	MATURITY RATE	HEIGHT
Bean	full	60-80 days	2'
Eggplant (transplant)	full	80 days or more	4-5'
Okra	full	60-80 days	6'
Sweet Potato	full	80 days or more	1'



1-7 Warm Season Flowers for Spring and Summer

PLANT	SUN	FLOWER COLOR	HEIGHT
ANNUALS			
Cosmos	sun/pt. shade	rainbow colors	18-48"
Dahlberg Daisy	full	golden-yellow	6-10"
Zinnia	full	rainbow colors	12-18"
Sunflower	full	yellow	2-12'
Portulaca	full	rainbow colors	4-8"
Periwinkle	full	white, pink, red, purple	6-12"
Copper Plant	full	coppery red leaves	2-4'
Torenia	sun/pt. shade	dk. blue/white, raspberry/white	8-10"
Gomphrena	full	purple, red	8-12"
PERENNIALS			
Pentas	sun/pt. shade	red, pink, lavender, white	1-4'
Rudbeckia	sun/pt. shade	golden-yellow	24-30"
Scaevola	sun/pt. shade	bluish-purple	6-10"
Verbena	full	rainbow colors	4-6"
Ixora	full	orange, yellow	2-3'
Coneflower	full	purple, white	12-18"
Gaura	full	white, pink	18-24"
Lantana	full	purple, white, yellow	2-4'
FLOWERING VINES			
Mandevilla	sun/pt. shade	pink, white	
Butterfly Pea	sun/pt. shade	dk. blue	
Coral Vine	full	pink, white	
Snail Vine	sun/pt. shade	purple	
Passionflower	full	purple, white, red	
Cypressvine	full	red, white	
Carolina Jessamine	sun/pt. shade	med. yellow (fragrant)	
Confederate Jasmine	sun/pt. shade	white (fragrant)	
Blackeyed Susan	sun/pt. shade	yellow, white	
Butterfly Vine	sun/pt. shade	yellow	
Sky Flower Vine	sun/pt. shade	lt. blue	



Turnips fresh from the garden GCMGA



Bring color indoors in the winter with bulbs GCMGA

Vegetables

Vegetables are grouped into seasons according to their ability to grow within specified temperature ranges. Following a few simple rules of thumb will increase the likelihood of achieving a successful fall garden.

The first step towards successful garden production is choosing the right varieties of vegetables. Other equally important factors include: fertile, well-draining soil, adequate sunlight, and sufficient water supply.

Our mild fall and winter seasons experienced along the Upper Gulf Coast prove advantageous in keeping our gardens alive and thriving (*Table 1-6*).

MID-FALL: OCTOBER 16 - NOVEMBER 30

Spring-flowering Bulbs

If you are planning to add spring-flowering bulbs to your borders, mid-to late fall is the best time to purchase healthy bulbs from your local nursery or garden center. Most spring-flowering bulbs can be planted at this time, but tulips require 6 to 8 weeks refrigeration to perform in our mild climate. Do not place them in the vegetable bin or your bulbs won't bloom due to the gas emitted by ripening fruits/vegetables. Our gardeners find it easiest to remember planting dates by associating them with autumn holidays:

Halloween, October 31st. Plant crocus, anemones and ranunculas. Both anemones and ranunculas should be pre-soaked in tepid water and rooting hormone a few hours before planting.

Veteran's Day, November 11th. Paperwhite narcissus can be started indoors in shallow pots lined with pebbles with water added to the top of the pebbles. These bloom during the Christmas season. In the ground, they bloom in January.

Thanksgiving. Crocus, amaryllis, daffodils, freesia, alliums, hyacinths, muscari, and rain lilies can be planted.

New Years Day. Plant tulips.

Bulbs vary greatly in size, shape, and favorable planting depth. For the best results, refer to the following recommended depths:

- Iris – just below the surface
- Anemones – 0-2 inches
- Ranunculas – 0-2 inches
- Rain Lilies – 0-2 inches
- Daffodils – 3-4 inches
- Tulips – 4-6 inches
- Hyacinths – 6-8 inches

To create a colorful impact, plant bulbs in masses of like or complimentary colors. Plant them in well-draining soil, enriched with organic material. When planting, add one teaspoon of bone meal (*squirrels also love it*) or superphosphate, per bulb, to the hole or planting area. Sprinkle soil over the fertilizer to avoid direct contact with the bulb. After setting the bulbs in place, replace and firm the soil, water the area and add a layer of mulch to retain soil moisture.



1-8 Flower Varieties for Early Fall Planting

PLANT	SUN	FLOWER COLOR	HEIGHT
Aromatic Asters	sun/pt. shade	purple	18-24"
Mexican Marigold Mint	full	golden-yellow clusters	24-36"
Rudbeckia	sun/pt. shade	yellow, golden-yellow	18-24"
Copper Canyon Daisy	full	yellow	24-36"
Mexican Bush	full	lavender, purple	24-36"
Sage	sun/pt. shade	rainbow colors	12"-48"
Ageratum	full	bluish lavender	24-36"
Cosmos	full	rainbow colors	24-48"
Zinnia	full	rainbow colors	12-24"



1-9 Vegetables Well-suited for Early Fall Planting

VEGETABLE	SUN	MATURITY RATE	HEIGHT
Beets	sun/pt. shade	30-60 days	1.5'
Broccoli (transplant)	full	60-80 days	3.0'
Cabbage (transplant)	full	60-80 days	1.5'
Cauliflower (transplant)	full	80 days or more	3.0'
Collards	sun/pt. shade	30-60 days	2.0'
Corn (sweet)	full	80 days or more	6.0'
Cucumber	full	60-80 days	1.0'
Kohlrabi	sun/pt. shade	60-80 days	1.5'
Lettuce	sun/pt. shade	30-60 days	1.0'
Mustard	sun/pt. shade	30-60 days	1.5'
Onion (transplants or sets)	full	60-80 days	1.5'
Onion (bulbs)	full	80 days or more	1.5'
Peas (English & snap)	full	30-60 days	2.0'
Pumpkin	full	80 days or more	1.0'
Radish	sun/pt. shade	30-60 days	.5'
Spinach	sun/pt. shade	30-60 days	1.0'
Turnip	sun/pt. shade	30-60 days	1.5'

LATE FALL: DECEMBER 1 - DECEMBER 14

Landscape Shrubs

Fall is a great time to plant shrubs to enhance your landscape or to replace plants that have succumbed to summer heat. The biggest advantage to planting shrubs in the fall is that they will have established a substantial root system before next summer's heat arrives.

Know the mature size (height and width) of a specific shrub, tree or perennial. Include that information in your design plan (*Table 1-10*). Before purchasing, examine the plant to ensure that it is healthy and isn't root-bound (*excessive roots twining around the root ball*) by removing it from the pot. Also examine the plant for disease or insect damage.

*Contact the Extension Office to request related publications:
GC-106, GC-107, GC-112, B-5015, or B-1584*



Root ball with matted roots GCMGA



Camellias are a winter gem GCMGA



Pansies are the most popular winter blooming flower for the Upper Gulf Coast GCMGA

Flowers

One advantage of our mild Upper Gulf Coast climate is the possibility of planting a winter flower bed and enjoying the colorful blooms even as landscape plants are winter-dormant (*Table 1-11*). Combining colorful annuals, with the tallest plants at the back of the bed or border and the shortest in front, gives a flower bed an orderly, more formal look. Some possibilities for cool weather floral combinations:

- Taller snapdragons (*Rocket varieties*) with shorter pansies (*the Majestic Giant or Crystal Bowl varieties*) with trailing sweet alyssum in front of the bed.
- Stately larkspur is another good flower for the back row, combined with dianthus in the middle and blue or white lobelia in the foreground.
- Other bedding plants thriving in the cooler temperatures are: primroses, violas, cyclamen, stocks, delphiniums, hollyhocks, and poppies.

In addition, some of these flowers are quite fragrant, especially stocks and sweet alyssum. All require well-draining soil with lots of organic material. And most will bloom better if the spent flowers are removed regularly.

Even though freezing temperatures are uncommon in our county (especially along the coast) they can occur. If a freeze is in the forecast, protect your beds with bed sheets or freeze cloth available at your nursery. If possible, water your flowerbeds before covering them and maintain coverage until temperatures rise above freezing.

EARLY WINTER: DECEMBER 15 - JANUARY 15

Trees

Arbor Day comes early to the Upper Gulf Coast, and early to mid-winter is the ideal time for tree planting. With the cooler temperatures, tree roots can become established before warmer temperatures encourage new top growth. Although we might have a freeze after March 1st, it does not seem to damage new trees.



1-10 Flowering Shrubs for Late Fall

PLANT	SUN	COLOR /FLOWER	HEIGHT
Duranta, Yellow Dewdrop	sun/pt. shade	lilac/blue flowers	7-8'
Barbados Cherry	sun/pt. shade	pink/white flowers, yellow berries	3-4'
Hummingbird Bush	full	orange tubular	5-7'
American Beautyberry	sun/pt. shade	purple/white berries 3" bunches	4-6' sprawling
Texas Mock Orange	sun/pt. shade	fragrant white flowers	3'
Indigo Bush	pt. shade	lavender/pink flowers	3-4'
Bridal Wreath Spirea	sun/pt. shade	small, white clusters	5-6'
Azalea	pt. shade	coral, salmon pink	1-9'
Gardenia	pt. shade	white	2-5'
Camellia	pt. shade	white, pink, red, salmon	6-10'
Oleander	full	white, pink, red, peach	4-10'



1-11 Winter Flowering Annuals

PLANT	SUN	FLOWER COLOR	HEIGHT
Snapdragon	full	rainbow colors	6-36"
Pansy	full	rainbow assortment	6-10"
Sweet Alyssum	full	white and purple	3-6"
Stock	full	white, pink, purple	8-10"
Larkspur	full	white, pink, dk. blue	18-48"
Dianthus	full	rainbow colors	6-8"
Lobelia	sun/pt. shade	blue, violet, pink	4-6"
Primrose	sun/pt. shade	rainbow colors	6-10"
Viola	sun/pt. shade	blue, yellow, purple	7-12"
Cyclamen	sun/pt. shade	white, red, pink, dk. pink	5-8"
Delphinium	full	pink, blue, white, dk. blue	24-36"
Poppy	full	rainbow colors	18-36"



Preparation of the planting hole is the first step to a healthy growing plant. This mechanically dug hole in hard gumbo clay is a recipe for disaster GCMGA



Crepe myrtles are one of the most popular flowering trees for this area GCMGA

Before planting a new tree, determine where you wish to plant it, and how large a space the mature tree will need. Some large trees particularly well suited to our area (*Table 1-12*).

Planting Trees

Most trees purchased at nurseries or garden centers are sold in containers or are wrapped in burlap. In either case, the roots should be kept moist until the tree is planted.

Improper preparation of the planting hole will result in transplanted trees suffering from major transplant shock and other plant health issues. To properly plant the tree, till or spade the soil area equal to five times the diameter of the root ball and deep enough to allow the upper surface of the root ball to sit level with or slightly above the existing soil line. This will help ensure that the roots do not drown in our heavy soils.

Roots matted at the bottom or circling around the root ball of container-grown plants should be cut and removed or straightened. In contrast, disturb the root ball of burlapped-wrapped plants as little as possible.

Once the hole is ready, remove the tree gently from the container (if it is wrapped in burlap, leave it intact, the burlap will degrade in the soil) and lift the tree by the root ball, not the trunk. Place the tree in the hole and fill the hole with the original dirt. Hold the tree in place while doing so, to keep it from leaning.

Water the soil as you refill the hole, to help it settle around the root ball. Mulch the entire planting area with a 2 to 4 inch layer of mulch. Keep the area well watered and weed free. A layer of mulch also provides a barrier to reduce damage to tree trunks caused by improper use of line trimmers or weed-eaters.

Most trees should not have to be staked. Some exceptions might be very large and/or tall trees or trees exposed to heavy winds. However, even these trees should be freed of stakes not later than one year after planting. Otherwise, the growth of the tree can be seriously impaired. In fact, when it comes to selection of landscape trees, homeowners are generally far better off in the long term to plant younger, moderate-size trees (*5 to 7 feet*) rather than older, larger trees.

*Contact the Extension Office to request related publications:
GC-108, GC-117, or GC-222*



1-12 Trees for Planting in Early Winter

TREE	SUN	HEIGHT	BLOOMS
LARGE TREES---			
White Oak	full	80-100'	
Swamp Chestnut Oak	full	60-80'	
Coastal Live Oak	full	40-60'	
Willow Oak	full	40-60'	
Drummond Red Maple	full sun/pt. shade	100'	
Bald Cypress	full	45'	
River Birch	full sun/pt. shade	30-50'	
Sweet Gum	full	50-60'	
Black Gum	full	30-60'	
Cedar Elm	full	30-60'	
ORNAMENTAL TREES---			
Texas Redbud	sun/pt. shade	20'	rosy pink
Mexican Plum	sun/pt. shade	15-30'	white, fragrant
Chinese Fringe Tree	full	20'	white, fringy
Parsley Hawthorne	pt. sun	25'	white red fruit
Possumhaw	sun/pt. shade	12-15'	white, red fruit
Vitex, Chaste Tree	full	20'	lavender
Sweet Bay	sun/pt. shade	20-30'	white, fragrant
Texas Mountain Laurel	sun/pt. shade	20'	violet clusters, fragrant, needs good drainage
Jerusalem Thorn	sun/pt. shade	12-15'	yellow clusters, fragrant
Crepe Myrtle	full	2-30'	rainbow colors



Stake trees only when necessary. A staking period of more than one year can damage or injure trunks.
GCMGA



Line trimmers or weed eaters can inflict serious damage to tree trunks GCMGA



1-13 Disease-Resistant Roses for Galveston County

ROSE NAME	COLOR	HEIGHT	FREQUENCY OF BLOOM	FRAGRANT
Mutabilis	single, orange to yellow	15'	Spr-Wnt	no
Souvenir	pale pink	3-4'	Spr & Fall	yes
Old Blush	dk. pink	3-5'	Spr, Sum, Fall	yes
Cramoisi Superieur	red	3-5'	Spr-Fall	yes
Penelope	pink to wht	5'	Spr-Fall	yes
Cecile Brunner	med. pink	3'	Spr-Fall	no
Celine Forestier (<i>climber</i>)	pale yellow	15'	Spr & Fall	yes



An antique or old garden rose GCMGA



A climbing rose GCMGA



A hybrid tea rose GCMGA

MID-WINTER: JANUARY 16 - JANUARY 31

ROSES

Despite what some may believe, it is possible to grow beautiful roses on the Texas Upper Gulf Coast. The basic requirements include a well-drained location that receives good air circulation and at least eight hours of sun.

Antique or old garden rose varieties (*those existing before 1897*) are perhaps the most reliable bloomers and the easiest to maintain. They also have a reputation for being more fragrant than many of the modern varieties. Many large local nurseries carry both antique and modern rose varieties, but there also are several nurseries in South Texas that specialize in roses.

Depending on the variety, some roses may bloom only once or twice a year, while others bloom from early spring to early winter.

*Contact the Extension Office to request related publication:
GC-216*

Pruning and Fertilizing

Many gardeners tend to be extremists when it comes to the tasks of pruning and fertilizing. One extreme view is that “more is better” (*radical and frequent pruning—lots of fertilizer*) and the other view is a more laid back approach to gardening (*plant it and let it grow, grow, grow...*).

However, as in most matters, the more moderate approach of pruning and fertilizing during the appropriate seasons and with the recommended quantities will encourage the desired results with less expense and wear and tear for the gardener.

Remember that if a landscape plant requires pruning too frequently during the growing season to retain the desired size, consider replacing the shrub with a more appropriate plant. After all, gardeners need an occasional break to relax and enjoy the fruits of their labors.

EARLY SPRING PRUNING: FEBRUARY 15 - MARCH 15

Hibiscus

Hibiscus should be pruned after all danger of frost is past. Our average frost-free date is March 1.

To prune, use sharp, clean tools to first remove any dead or diseased wood. Cut into green wood to about a quarter-inch above an outward-pointing bud. Cut at a slant so that water will roll off the cut and not promote decay. Then remove branches growing toward the center of the plant. Do not leave stubs. You may want to prune as much as 30 percent of the plant at one time, depending on how much frost damage exists and how large you like your plant,

Gardenia

Gardenias are best pruned in early spring, after they have bloomed. To avoid removing flower buds, do not prune gardenias after early summer.



Hibiscus provides a tropical setting to landscapes and are available in an array of colors GCMGA



Azaleas provide color during late winter GCMGA



Prune crepe myrtle flowers after they fade to encourages new flowers GCMGA



Majestic oak tree demands expert pruning GCMGA



Make cuttings of coleus during late summer GCMGA

Azalea

Azaleas should be pruned shortly after they have finished blooming. In most cases they will require minimal pruning. Using sharp clean tools, long shoots can be removed by reaching down into the plant and making cuts next to larger woody branches. However, if the plants have outgrown their surroundings, they may be pruned to about one foot in height. Pruning an azalea properly will improve air flow and light exposure to reach the interior of the plant.

Ornamental Grass

Cut ornamental grasses back dramatically with pruning shears to control size and promote new growth.

Camellia

Prune the common camellia in spring after blooming is completed. Remove all dead branches as well as any wayward growth. Make cuts at a slant back to branch, bud, or leaf.

MID-SUMMER PRUNING: JUNE 16 - JUNE 30

Crepe Myrtle

Deadheading (*removing dead blossoms or seed pods*) crepe myrtles will produce a burst of new blooms later in the summer, and help prevent seed pods from germinating and popping up in unexpected places. Using clean pruning shears, cut off the seed cluster to a leaf.

LATE SUMMER PRUNING: JULY 1 - SEPTEMBER 30

Late summer is a good time to begin removing dead wood and leaves from the flower beds and garden. Cleaning the debris and dead plant material reduces the potential for overwintering pests.

Roses

Remove dead or diseased twigs or canes from all varieties and lightly prune everblooming roses to restore their shape. Perpetually blooming roses will show their appreciation with a spectacular burst of blooms in middle to late October.

Trees

During this season, prune dead or damaged tree limbs only.

Annuals and Perennials

Prune back salvia, geraniums, torenias, coleus, impatiens, and zinnias. Cuttings from geranium, coleus, and impatiens may be dipped in rooting hormone and placed in pots indoors when cold weather arrives. Provide adequate sun, water, and protection from indoor pests. By next spring, your cuttings will be large enough to plant outside.

EARLY FALL PRUNING: OCTOBER 1 - OCTOBER 15

Louisiana Iris, Daylily, and Chrysanthemum

Dividing clumps of Louisiana iris, daylilies, and chrysanthemums and replanting them every 3 to 4 years, rejuvenates each plant and encourages production of larger, healthier blooms.

After digging up a clump with a gardening fork, separate the iris fans or plants. Replant the separated plants in fertile soil with good drainage and water well. Then cut the iris fans to about one-third their original height.

MID-WINTER PRUNING: JANUARY 16 - JANUARY 31

Shade Tree

Mid-winter is the ideal time to prune trees, while they are dormant. To determine which trees require pruning, first, check for and remove branches which are dead or diseased, those that interfere with utilities, or those that restrict a view.

Because trees add so much value and comfort to the landscape, you may want to consult with a tree specialist or arborist before attempting to prune the large branches of mature trees.

Special tools such as tree loopers, pruning saws, and chain saws are required for pruning tree branches larger than 2 inches in diameter.

Cuts to branches should not leave stubs, but should be made along the branch bark collar (*outer edge of the thickened ridge of bark where the branch meets the trunk*). Leaving the branch bark collar intact will speed wound healing and prevent borers from taking up residence in the wound.

The use of pruning paint is no longer a common practice. The primary reason is the lack of a suitable product that doesn't require follow-up maintenance. Most products shrink, dry, or crack and create a breeding ground for fungal and bacterial growth.

LATE WINTER PRUNING: FEBRUARY 1 - FEBRUARY 14

Rose

Many gardeners remember when to prune their roses by the simple method of always pruning them on Valentine's Day. Generally, antique and modern varieties may be pruned around the same time, unless they are climbing roses. Once a year blooming climbers are pruned after they have bloomed in the spring, but repeat blooming climbers are usually bloomed when dormant around February 14.

Antique roses do not require heavy pruning. Remove the dead or diseased canes and then prune lightly to shape the plant and remove twiggy growth.

To prune modern roses, remove about a third of the plant's height. Make your cuts about a quarter of an inch above a bud eye growing on the outside of the cane. Cut at a 45-degree angle to allow water to drain away from the cut area. Typically you will want to leave only 3 to 4 healthy looking canes,



Daylilies come in a variety of colors and sizes forming a pleasant bed by themselves GCMGA



Do not leave stubs when pruning trees. Leaving stubs invites tree decay and insect damage GCMGA



February 14 is an ideal time to prune roses GCMGA



Got crepe myrtles? Avoid “crepe murder” style pruning! GCMGA



Hibiscus blooms lend a tropical-look to a garden GCMGA



Statue of Diana among azaleas and sculpted hedges GCMGA

to form an open vase-like shape. By removing interior canes and twigs, air-flow and sun exposure will be improved, providing for a healthier plant.

Prune repeat blooming climbers in much the same way as modern roses, leaving three or four healthy canes.

Crepe Myrtle

Crepe myrtles need to be pruned while they are dormant. Proper pruning will result in a stronger, healthier tree. Resist the annual temptation to “top” the tree or to severely prune back to a trunk in winter. Instead remove dead wood, root suckers, and weak wood. Avoid leaving stubs, and make pruning cuts at a 45-degree angle so that water will drain.

Wisteria

Remove all spindly growth. Reduce the length of shoots growing from the central woody canes to about six buds each.

FERTILIZING EARLY SPRING: FEBRUARY 15 - MARCH 15

Gardenia

Sometime in March, fertilize gardenias using a product specifically formulated for them because gardenias need more acidic soil. You may wish to apply a light application of an organic fertilizer throughout the growing season for a longer blooming season.

Hibiscus

Hibiscus can be fertilized with a product containing a higher proportion of potassium (*represented by the last number in the fertilizer formula*). Specially formulated fertilizers are available for hibiscus. Water before and after fertilizing particularly if you use a granular product. Fertilize at least monthly throughout the growing season.

Azalea

Azaleas should be fertilized soon after they have finished their spring blooming period. Use a product specially formulated for azaleas, or fish emulsion, or a fertilizer with a lower phosphorus number since you are not encouraging blooming. Water before and after fertilizing — especially when using a granular product.

Lawn

Generally, the first application of fertilizer should occur after the second or third mowing. The fertilizer formulation used should be based on the results of soil testing; however, in the absence of soil testing, use a fertilizer with a low phosphorus content such as 15-5-10.

Using a mulching mower will reduce the need for additional fertilization between spring and fall since grass clippings contain 3 to 4 percent nitrogen.

Cool Season Annuals

Consider applying fertilizer to cool season annuals if it has been over six weeks (*for a slow release fertilizer*) or over 2 weeks (*for a water soluble fertilizer*) since you last fertilized.

They will continue to bloom throughout winters that do not have temperatures below freezing. Our winters also include sunshine days which stay in the 70s which bring blooms from fall blooming perennials.

LATE SPRING FERTILIZING: APRIL 21 - MAY 20

Lawn

Bermudagrass lawns may require an additional fertilizer application between spring and fall. In the absence of soil testing, use a fertilizer with a low phosphorus content such as 15-5-10.

St. Augustine grass may require an additional application of nitrogen and iron during the late summer particularly in areas where soil is sandy or receives a lot of rain. The late summer application should be a slow-release or organic form of nitrogen.

Trees

Having your soil analyzed is good for both grass and trees, particularly in determining the presence/lack of micronutrients which are essential for tree health. A detailed soil analysis will specify any deficiencies or excess levels. Iron deficiency is common in alkaline soils and iron can be applied in the form of chelated iron. Always apply according to labeled directions and do not use chelated iron on tropical plants because it may burn them.

LATE SUMMER LAWNS: JULY 1 - SEPTEMBER 30

St. Augustine grass may require an additional application of nitrogen and iron during the late summer, particularly in areas where soil is sandy or receives a lot of rain. The late summer application should be a slow-release or organic form of nitrogen. Iron sulfate or iron chelate may be applied to prevent chlorosis (*yellowing of grass blades*).

MID-FALL FERTILIZING: OCTOBER 16 - NOVEMBER 30

Lawn

Along the Upper Gulf Coast, either October or November is the month to apply fertilizer to your lawn through the winter. The formulation should be relatively high in nitrogen and potassium and low in phosphorus such as 15-5-10.



Petunias provide color from fall to spring GCMGA



A lush green lawn adds to an inviting landscape GCMGA



Concrete does not respond to fertilization! Careless distribution causes these otherwise useful products to flow into and pollute our community water supply and the Galveston Bay ecosystem GCMGA

LATE WINTER FERTILIZING: FEBRUARY 1 - FEBRUARY 14

Roses

Roses often begin showing new growth in late winter (early to mid-February). Most gardeners prune and fertilize their roses for the first time around mid-February. Fertilizers produced especially for roses are readily available. In addition, fishmeal, bonemeal, and cottonseed meal are also beneficial, as are composted organic materials. Water before and after applying fertilizer when soil moisture levels are low and follow the labeled directions to avoid plant damage. After the first application, follow up on a 4 to 6 week basis until September.

Responsible and Safe Fertilization Practices

Carefully read and follow instructions on all fertilizers. Be sure to use the rate recommended by the manufacturer, i.e., do not over fertilize. When spreading or broadcasting, keep the fertilizer on areas that are specific to their purpose. Overuse of fertilizers and careless distribution cause these otherwise useful products to flow into and pollute our community water supply and the Galveston Bay ecosystem.

Diseases, Pests, and Weeds



A dense gathering of aphids on a bean stalk GCMGA

When considering the number and variety of pests and diseases which can afflict plant life, it's easy to be discouraged about even beginning a garden, flower bed, or yard. But with all of the challenges that confront the gardener, there are ways to reduce the impact of pests and disease in your garden before resorting to pesticides. By considering the following when planning, purchasing, and planting, you'll spare yourself time and trouble as you create your personal garden paradise.

- Purchase disease resistant varieties whenever possible particularly when buying vegetable transplants and fruit trees.
- Use native or adapted plant materials in your landscape, thereby reducing the need for irrigation and pesticides. You and your plants will both be happier when the temperatures hit 95 degrees.
- Build up flower and vegetable beds at least 4 to 6 inches to improve drainage.
- Maintain 2 to 3 inches of mulch in flower beds and gardens to retain soil moisture, moderate soil temperature, and reduce weeds.
- Provide adequate space between plants to allow maximum air circulation and sun penetration.
- Keep beds and lawn free of debris and diseased plant materials that harbor potential problems.
- Use fertilizers wisely and properly.
- When problems surface, explore the possibilities for organic as well as chemical solutions and follow all labeled directions for the best results.
- Remember that not all insects are pests. Some are even beneficial. Before you launch an assault, identify the insect when possible to determine if it is harmful or helpful and the most effective options for managing it.
- Small problems are easier to treat. Establish a routine for checking on your yard and garden at frequent intervals.



Sooty mold grows on honeydew which is secreted by sucking insects GCMGA

EARLY SPRING: FEBRUARY 15 - MARCH 15

Aphids and Mealybugs

Watch for aphids and mealybugs. Both are sucking-type insects which extract sap from vegetables, trees, shrubs, and other plants and in turn, excrete honeydew, a sticky substance which covers the plants stems and leaves and supports the growth of black sooty mold as shown in picture at left.

Aphids appear as clusters of small green or yellowish-green insects on the buds or young leaves of roses and other flowering plants. Aphids also come in a variety of other colors ranging from black to yellow.

Mealybugs are white, fluffy, soft-bodied insects, which appear on stems and leaf axils of flowering plants and landscape shrubs.

A strong burst of water from the garden hose can dislodge both pests. However, if the insects are feeding on several plants, use an insecticidal soap and follow all directions provided by the manufacturer.

MID-SPRING: MARCH 16 - APRIL 20

Tomato Hornworm

The tomato hornworm can strip the leaves from the plant and punch holes in the fruit. Use of a low toxic insecticide that contains *Bacillus thuringiensis* can help control this insect pest. Several other insecticides, such as malathion, also provide good control.



Tomato hornworms can quickly strip vines GCMGA

Cabbage Looper

The cabbage looper is a greenish-colored caterpillar that grows up to 1/2 to 1 1/2 inches in length. It chews holes through the leaves of low growing flowers, fruits, and vegetables. Brown pellets can be seen on leaves of host plants. When possible, pick these pests off by hand, checking on the undersides of leaves. Use of an insecticidal soap or an insecticide that contains *Bacillus thuringiensis* can help control this insect pest.

Red Spider Mite

Azaleas, hollies, and camellias are particularly susceptible to the red spider mite. As this tiny mite sucks plant cells dry of their contents, the plant's leaves appear to have a fine bronze or brownish dust on them, and new growth is distorted. An insecticidal soap may be used to control the spider mite. Strong sprays of water can also help dislodge them.

Lacebug

Both the nymph/immature stage and adult stage of lacebugs can inflict severe damage on azaleas, from mid-spring until early fall. Evidence of their presence can be noted in the tan or white speckled upper leaf surface. However, damage can also be seen on the undersides of leaves where sticky brown or black drops appear (the result of sap being sucked from the leaves



The cabbage looper is appropriately named GCMGA

and digested). The dark, spiny nymph is less than 1/8 inch long, while the adult has lacy, transparent wings. Strong sprays of water can disrupt the lacebugs' activity. An insecticidal soap or horticultural oil may also be used. Both upper and lower leaf surfaces should be treated for maximum effectiveness.

Wireworm

Wireworms are about an inch long, shiny orange-brown in color, with three pairs of legs at the head end, and a small protuberance on the underside of the abdomen. They live in the soil and can attack large seeds and seedlings in spring and summer, as well as damaging root crops and tubers in late summer. The wireworm is the larval stage of the click beetle and is most common in newly cultivated grassland or in areas of new construction. To minimize damage to potato tubers and sweet potato roots, dig up potatoes as soon as they ripen. Also, by using insecticide-treated seed, rotating crops, and providing good drainage, their numbers will gradually be reduced.

Snails and Slugs

Snails and slugs love our humidity, but they can't take the midday heat. The easiest way to eliminate them is to follow the slime trail to a shady spot under a window ledge, on a shady wall, under the rim of a flower pot, etc. They gather to cool off during the afternoon hours, allowing you to easily pick them off by hand.

Other methods of deterrence include placing copper strips around the perimeter of your garden or flower beds, or using diatomaceous earth around the base of each plant.

Snail baits are also available, but should be used according to labeled directions.

Leaf-footed Bug

The adult stage of the leaf-footed bug is about ¾ of an inch in length, with a dark-brown body, marked by a distinctive white band across its back. Its two hind legs resemble the outlined shape of oak leaves. Both the adult and nymph stages are destructive, attacking fruits, vegetables (especially tomatoes after the onset of ripening), and ornamental plants from spring to fall by means of sucking out plant fluids and marring the ripened fruit's (or nut's) appearance.

During the nymph stage, the bug's body is bright orangey-red and is wingless. Nymphs travel in groups and are often mistaken for assassin bugs (however, assassin bugs do not congregate in groups and are beneficial insects).

Control of the leaf-footed bug can be as easy as picking them off the host plant and destroying them, or for large infestations, using an insecticide containing permethrin.



Wireworms damage plant roots GCMGA



Slugs are active at nighttime GCMGA



The leaf-footed bug is a common pest of tomatoes GCMGA



The assassin bug is often mistaken for the leaf-footed bug, but is a highly beneficial insect GCMGA



Keep on the lookout for scale insects GCMGA



Blossom end rot on tomatoes GCMGA



Root-knot nematode damage on tomato roots GCMGA

Flea Beetle

The adult flea beetle is about 1/12 to 1/8 inch long and has yellow stripes on both wings. They chew small round shot holes on the upper leaf surface of radishes, turnips, alyssum, stocks, and other flowers and vegetable plants. Damaged tissue surrounding the holes will dry up and turn brownish-white. Flea beetles are active in both spring and summer and are capable of killing seedlings.

To reduce potential damage, clean up garden areas in the fall where they may over-winter. Use sticky yellow strips in flower beds or along planting rows, or use an insecticide labeled specifically for this insect.

LATE SPRING: APRIL 21 - MAY 2

Scale

Scale insects range in color from black to white. They are usually small (less than 1/4 inch) and can be flat or dome-shaped. At the adult stage, they are immobile, but the young insects (known as crawler) move around, looking for a suitable place to feed. They feed by sucking the sap from landscape plants and excrete honeydew as a result. The honeydew promotes the growth of black sooty mold which hinders the plant from absorbing sunlight.

For a minor scale problem, remove the affected leaves and stems and destroy them. For larger problems, an insecticidal soap or horticultural oil can be effective. Use of a traditional insecticide may be necessary for difficult-to-control infestations. Always follow the label directions when using any pesticide.

Blossom End Rot

Tomatoes and occasionally sweet peppers are susceptible to blossom end rot. The condition is apparent when the blossom end of the tomato or pepper becomes sunken and the area shrinks, darkens and becomes firm and leathery to the touch. Although there are several causes of blossom end rot, in our growing environment the cause is typically due to inadequate watering. Under low soil moisture conditions, portions of the tomato fruit do not receive sufficient calcium which causes cells to collapse and darken.

To prevent, make certain that vegetable plants receive adequate moisture (don't allow them to completely dry out). In fact, when rainfall is adequate, blossom end rot rarely occurs. To control, remove affected fruit and modify the watering schedule to avoid the occurrence of low soil moisture conditions.

Root-knot Nematode

Nematodes are very small (not visible to the un-aided eye) and wormlike. They inhabit the soil around plant roots and/or the plant roots themselves for most of their lives and reproduce by laying eggs. They are most active in soil temperatures between 59 and 92 degrees.

Tomato and pepper plants and members of the cucumber family are susceptible to root-knot nematode damage. Infected plants appear stunted and discolored. The roots are covered in galls which are not easily removed. Plants infected early in the season are unlikely to produce fruit.

Nematodes can be managed by employing one or a combination of the following methods: soil solarization, or super-heating the soil by covering with clear plastic sheets, for at least six weeks; summer fallowing, which involves tilling and re-tilling the soil 3 to 4 times during the heat of summer to completely dry the soil; trap-cropping, using Elbon rye as a fall cover crop to trap the nematodes; and crop rotation or alternating planting non-hospitable crops with those more susceptible.

EARLY SUMMER: MAY 21 - JUNE 15

Annual Weeds

Maintaining a healthy, growing lawn is the best way to control weed problems. A dense lawn prevents weed seeds from finding room to germinate and spread. And even when a few weeds have managed to take root and grow, the quickest way to eliminate them is to pull them—preferably before they have flowered and spread seed.

However, sometimes it is necessary to resort to chemical weed controls. Pre-emergent herbicides can be used in early spring (*mid-March*) to help control summer germinating weeds such as crabgrass and goosegrass which are both commonly occurring weeds in our area.

Follow the labeled directions carefully to prevent damaging trees and landscape shrubs. Purchase only products specifically formulated for the type of weed or problem you need to control.

Barklice

Each summer Master Gardeners receive numerous calls inquiring about landscape trees suddenly being enveloped in dense, spider web-like structures ranging from patchy areas to entire trunk and/or limbs! These are “friendly critters” known as barklice. Watch for barklice on yaupon hollies and other trees, especially oak trees. Barklice are tiny insects that produce dense white webbing which can completely encase small branches, making them look eerie. Fortunately, these tiny creatures are actually beneficial—they eat fungi growing on the tree’s bark.

MID-SUMMER: JUNE 16 - JUNE 30

With the onset of hot, wet weather, some landscape plants succumb to various diseases.

Chinch Bug

The nymph and adult forms of chinch bugs suck the sap from grasses, leaving the blade wilted and yellow. Small yellow spots appear, often where the lawn and sidewalk meet. These areas can expand and cause severe damage in one season. Check for chinch bugs by looking at the base of the grass stems. Tiny dark bugs, with a yellow band across the top of the back may



Silken webs on tree branches signal barklice, which are beneficial GCMGA



Close up view of a silken web produced by barklice GCMGA



Powdery mildew on crepe myrtle leaves GCMGA



White grubs can devastate lawns GCMGA



Sooty mold grows on honeydew which is secreted by sucking insects GCMGA

be observed. However, the adult chinch bug as well as the nymph damage grass by sucking out the sap and injecting a poison into the blade. To prevent infestations, keep grass watered during dry spells and remove excess thatch. To control, encourage beneficial insects such as lacewings, ladybugs, and parasitic wasps. For large infestations use a commercial insecticide per labeled directions.

Powdery Mildew

Look for powdery mildew (*a fungal disease*) on undersurface of crepe myrtle and rose leaves, as well as zinnias. Severely infected leaves appear to be distorted and sprinkled with baby powder. Treat with a fungicide which specifically lists the tree or plant to be treated.

White Grub

White grubs (*also known as grubworms*) are the larval stage of the May or June beetle. They can consume the roots of St. Augustine grass so that it turns brown and can be rolled up like a carpet. To best control these pests, apply a granular insecticide (*such as one containing permethrin*), in early July. Water the lawn lightly after applying. Follow up with a second application of insecticide after four weeks.

Sooty Mold

Sooty molds are dark-colored fungi that grow on honeydew excreted by sucking insects. Honeydew excreted by sucking insects such as scales, mealybugs and aphids serves as a rich food source for fungi. Insect honeydews contain sugars, amino acids, proteins, minerals, and vitamins.

Sooty mold coverings on leaves block light, making photosynthesis less efficient. On outdoor structures and furniture, sooty mold growths are unsightly and may be difficult to remove. Some people are allergic to sooty molds. Sooty molds can be indirectly controlled by reducing populations of sucking insects that excrete honeydew.

Bud Drop

In periods of dry weather, it is common for summer blooming plants, particularly hibiscus and encore azaleas, to drop fully formed buds before they bloom. On an otherwise healthy looking plant, this may be due to lack of water. Container plants are particularly susceptible because they dry out fast.

To prevent bud drop, water plants deeply and thoroughly and apply 2 to 3 inches of mulch over the root area. Avoid over-fertilizing.

Leafminer

The leafminer is the pupa of the leaf-mining fly. While the pupa is difficult to see (a tiny white worm usually found embedded in a leaf), the twisting white lines meandering through the leaves of flowers and herbs are easy to spot. To prevent extensive damage, pick and destroy off affected leaves when discovered. Contact the Galveston County Extension Office for additional recommendations.

Fruit Cracking

Tomatoes and many types of fruit trees, including citrus, are susceptible to fruit splitting. This disorder is characterized by skin-deep breaks or cracks occurring in the skin layer, generally around the stem-end of the fruit. Cracks may appear in a circular pattern around the stem end or as long narrow breaks. The cracks may heal over, but the fruit may still succumb to bacterial or fungal infection. The cause is an erratic supply of water (*alternating periods of rain and drought*).

To prevent, provide adequate moisture during periods of drought and maintain mulch to reduce evaporation.

LATE SUMMER: JULY 1 - SEPTEMBER 30

Fall Webworm

Despite their name, homeowners should be on watch for fall webworms during this time. Their webs surround the ends of tree branches. If possible, remove the web and treat with *Bacillus thuringiensis*.

Bagworm

Bagworms actually create carrot-shaped bags, no more than one-half inch in length, which hang from trees, plants, and even walls. It is actually easiest to hand-pick these little bags and destroy them on sight. However, if their numbers become too great, control them with *Bacillus thuringiensis* or another approved insecticide.

Brown Patch

As nights begin to cool in early September, brown patch, a fungal disease, can appear as a circular area of dying grass. To prevent, avoid watering late in the day, provide good surface drainage, avoid over-fertilization, and aerate the soil regularly. To control, treat with a fungicide recommended for this condition. Follow labeled directions carefully.



Cracks in tomatoes GCMGA



Fall webworm is a pest of mulberry, pecans, and many plants GCMGA



Unless the web is removed quickly, the webworms grow and fall to the ground and begin the cycle again GCMGA



Brown patch on St. Augustine grass GCMGA



Fairy rings GCMGA



Dandelion GCMGA



White clover GCMGA

EARLY FALL: OCTOBER 1 - OCTOBER 15

Fairy Rings & Mushrooms

In the fall, concentric rings form on the grass, the borders of which can be quite green, while the interior areas are brown or dead with toadstools of 1 to 5 inches growing in the middle of the ring. The toadstools are caused by a fungus which grows so densely it can prevent water from penetrating and cause the grass to die. Prevent the fungus by maintaining a vigorous lawn and avoid over-fertilizing. To help manage the fungus, rake up and dispose of the toadstools. Mow the area and discard the grass clippings. Dig out the grass and the topsoil to a depth of one foot.

Mushrooms can also be a problem in lawns. Management options are the same as for fairy rings. After an extended period of dry weather conditions, mushrooms typically appear after a heavy rain.

MID-FALL: OCTOBER 16 - NOVEMBER 30

Cool Season Weeds

Around the middle of October, a pre-emergent herbicide can be applied to the lawn to control cool season weeds. However, do not rely on herbicides as the primary means to control weeds in the lawn. A dense, healthy lawn is the best defense for controlling weeds. If weeds are a major problem, first get a soil fertility test done. Be sure that you mow at the proper height. A low cut lawn cannot compete against weeds as well as a higher cut lawn. Be sure to follow directions regarding use of herbicides near trees and shrubs to avoid harming or even killing them.

MID-WINTER: JANUARY 16 - JANUARY 31

Pest Management

Mid-winter is the season when trees are most likely to be experiencing dormancy. However, many of the pests which create problems in spring and summer are still present, waiting for warmer temperatures and a new burst of growth to renew their attack.

Spraying ornamental trees and fruit trees with dormant oil is one of the best ways to prevent damage resulting from insects and fungus.

Beneficial Critters



Anole lizards are inexpensive pest control agents and are fascinating to observe GCMGA

As mentioned in the introduction, not all insects in our gardens are destructive to plant life. There are a number of creatures that actually aid in limiting the presence of harmful insects. The following section lists those that are common beneficials in the Texas Upper Gulf Coast area. If you don't have these in your yard or garden, it may be that you don't have the insects they like to prey upon. However, if insecticides have been heavily or frequently used, the beneficials may have been eliminated along with the pests.

Anole Lizard

The anole lizard (*green or brown color, depending on the temperature*) is 5 to 8 inches long and is harmless to humans and pets. The male has a bright red sack or dewlap under his jaw, which is enlarged when he attempts to attract a mate, or wishes to appear ferocious. Favorite foods of the anole lizard include crickets, cockroaches, moths, grubs, beetles, flies, and grasshoppers. Anoles are active during daylight hours and can be observed in the garden almost year-round. They lay their small, white eggs in moist locations. The eggs hatch anytime from spring to fall. Anoles may live for several years—and that's a lot of inexpensive pest control!

Hover Fly

Also called syrphid flies, adult hover flies resemble sweat bees (but hover flies don't sting) with black and yellow banded bodies. They measure about ½ inch in length and have one set of wings (*sweat bees have two sets of wings*). They are often seen hovering near their favorite food source, flowers, from which they obtain nectar and pollen. However, the larval stage is green or light brown and feeds on aphids and mealy bugs. A single larvae may consume up to 400 aphids before it pupates.



Although his name, Gecko, is misused in TV commercials, this is the real thing GCMGA



Adult lady beetles GCMGA



Lacewing eggs on leaves GCMGA



Assassin bugs sharing a housefly for dinner! GCMGA

Gecko Lizard

Geckoes are spotted lizards with an odd appearance that also match their intriguing habits. That's because geckos feed on cockroaches and a wide variety of other insect pests!

The body of a gecko is cylindrical, squat, and sometimes flattened on the upper side. The skin is usually gray with several brownish-red to bright red spots and flecks, but it has the ability to lighten or darken the coloring of its skin. They tend to nocturnal (active during night) and are often spotted near a doorway entrance with night lighting or window.

If you're lucky enough to have a gecko in your yard, leave him or her alone. A gecko in your yard will reward you by keeping many insect pests in check. Bear in mind, though, any type of lizard is susceptible to pesticides, and if you use them widely or indiscriminately in your yard and garden—you're probably not going to have many lizards of any kind around.

Lady Beetle

Adult lady beetles (also known as ladybugs and ladybird beetles) vary in length is about 1/8 inch to nearly 1/4 inch in length, depending on the species. Color variations are wide and also depend on the species. Two common ladybugs that occur in our area are known as the Convergent Lady Beetle (with black, white and orange colorations) and the Twice-stabbed Lady Beetle (shiny black color with two blood red color spots).

Both the adult and larval stages feed on aphids. Some adults are also fond of spider mites, scale insects, and fungal spores. The larval stage resembles a tiny blue, gray, yellow or orange colored alligator and is less than 1/2 inch long. One adult lady bug can consume up to 50 aphids per day.

Lacewing

Adult lacewings are slender, pale-green insects, about 1/2 inch long, with two sets of transparent wings. Adult lacewings feed on pollen and nectar and females lay their tiny eggs on long stalks on the undersides of leaves. The larval form of the lacewing, which is sometimes called an aphidlion, is about 1/2 inch in length, and is yellowish-brown with stiff, bristle-like hair. The aphidlion feeds on aphids, spider mites, leafhoppers, and thrips, and can sometimes be seen carrying the remains of its meal on the upper surface of its body.

Assassin Bug

Assassin bugs are very common in this area. They prey on caterpillars, aphids, armyworms, stink bugs, and houseflies. The most common species of assassin bugs in this area have a very distinctive bright red and black colorations and measure about 3/4 inch in length with folded wings. Assassin bugs have a needle-like, piercing mouthpart and, though a very uncommon occurrence, they are capable of inflicting a painful (*but typically not harmful*) nip to a person exposed skin. If an area is known to have a high density of these beneficial critters, it's best to shake the foliage of any plants you wish to harvest or remove in order to scatter any foraging bugs.

Giant Cicada Killer

An adult cicada killer is a wasp with a shiny black body, marked by distinct yellow bands across its thorax and the upper portion of its abdomen. It is larger than other wasps (up to 1¾ inches in length) and its head is a rusty red. Its wings are brownish-yellow and it has yellowish legs. Cicada killers live alone and are most visible in late summer when they prey on “annual” cicadas.

The adult female digs a burrow (6-10 inches deep and ½ inch wide) in loose clay or sandy soils, (a horseshoe shaped pile of dirt encompasses the opening) preferably where the grass is very short or non-existent. She uses her sting to paralyze her prey (*cicadas*) and then takes it back to the burrow to provide a food source for her developing young. There is only one generation per year. All adults die annually. Although their large size makes them conspicuous and slightly threatening, the female wasp will rarely sting unless disturbed.



Giant cicada killer entering its underground nest
GCMGA

Trichogramma Wasp

The trichogramma wasp, though only as large as the point of a pencil, can be a valuable assistant in controlling infestations of damaging caterpillars, such as the cabbage-looper, armyworm, pecan casebearer, corn earworm, and cutworm. The female wasp lays up to 100 eggs, each in a host egg, which eventually dies. The wasp larvae hatches, feeds, and pupates within the host egg. The adult wasp feeds on pollen and nectar and is harmless to humans and pets. There are over 40 species of trichogramma wasps in North America. Some are commercially available. Since some species are specialized parasites, the correct one should be used based on the pest to be controlled.



Paper wasp preparing a meal of a caterpillar to feed its young GCMGA

Praying Mantis

Praying mantids can grow up to 5 inches in length and are yellowish-green in color with a triangular shaped head. Their name is derived from the position they take while waiting for their victim. Mantids are carnivorous and they feed on pest and non-pest insects alike. They are even known to hang out around beehives and treat themselves to honeybees. The female lays her eggs in masses in plantings and tree branches. The mantid larvae are cannibalistic and many don't survive to become adults. Because of their large size they are readily spotted and devoured by birds.

Butterflies and Caterpillars

We live in an age when some butterfly species have become so endangered or rare, that they are captured and placed in glass “nurseries.”

As we observe their ephemeral beauty in our gardens and arboretums, we must remember the source of these delicate creatures (*the sometimes unsightly caterpillar*). In our desire to produce and enjoy delicious fruits, vegetables, and flowers, we need to balance our short-term goals with the needs of future generations.

To encourage the presence of beneficial critters in your garden, use a variety of plants that flower and limit the use of insecticides.



Swordtail butterfly GCMGA

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COLOPHON

Thumbnail Gardening was designed with one column of type on a five-column grid. The body typeface is Garamond. The display face is Myriad. Tables were set with Myriad. Both fonts are known to be very readable and work well together.

The booklet contain quite a number of tables which were very important to the reader for seasonal information. That consideration was what produced the choice of layout and fonts. So function outruled fashion in the choices of this booklet.

This artistic sculpture was a gift to our Demonstration Garden
and was the creation of Master Gardener
Andrea Haschke, Class of 2000



The End



Gardening is a shared experience. We are sharing with those who have had possession of it for a long time. We need to treat them with respect, laugh at them and some how live in better harmony with them.

We wish to thank all those who have supported the Galveston County Master Gardener Program by attending our education programs and plant sales or just dropped by to rest and enjoy our demonstration garden.

And if you plan to make a trip to see us soon, bring your camera because you will always have a pleasant surprise!

The Galveston County Office of Texas Agrilife Extension Services offers educational programs, workshops, and plant sales throughout the year. For additional information regarding programs offered in Galveston County, visit our website at: <http://aggie-horticulture.tamu.edu/galveston/index.htm>

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