Other controls: Spray with horticultural oil or insecticidal soap. If that fails, apply a systemic insecticide (i.e., imidacloprid) to the root system. Soil systemics may take several weeks to work. Choose a product that affects only pests that feed on plant sap.

Mole crickets: Velvety brown, 1½” long, feed on turfgrass and vegetable roots. Flattened front legs adapted for burrowing. Mole crickets affect all grasses, but prefer bahiagrass and bermudagrass. Injured turf may be spongy and thinning, with ¼”-round holes that are signs of tunneling. Infestation usually occurs in same area each year. Test for infestation by flushing area with soapy water (1–2 tablespoons soap in a gallon of water). Crickets will surface within 3–5 minutes if present.

Natural enemies: Parasitic wasp (Larra bicolor), red-eyed fly (Ormia depleta), insect-parasitic nematodes (Steinernema scapterisci) and birds.

Other controls: For chronic infestation, consider replacing turf with trees, shrubs or groundcovers. If necessary, spot-treat infestations in May or June with insecticides labeled for mole cricket control.

Plant-feeding mites: Tiny (1/32”) red, yellow or green with oval bodies. May have spots. Some spin loose webs on foliage. Mites reproduce rapidly in hot weather. Injuries to plants look like light-colored dots, giving leaves a dull, gray-green, speckled appearance.

Natural enemies: Lady beetles, predatory mites.

Other controls: Flush with water, then alternate with soap and oils if necessary.

Scales: Vary in size, shape and color; approximately 1/8” in diameter. Soft scales and armored scales are the most common. Soft scales produce
RIGHT PLANT, RIGHT PLACE

Have you ever bought a plant that looked great at the nursery or garden center, only to have it die once you planted it? One way to avoid this heartbreaking scenario is by putting the right plant in the right place — matching the plant to the site conditions. This encompasses far more than simply putting sun-worshiping plants in your yard’s sunny spots. You also need to consider things like maintenance and water needs. Our checklist will help you review some basic guidelines for getting the right plant in the right place in your Florida-Friendly Yard.

- **Wet vs. dry.** Many drought-tolerant plants thrive on elevated dry spots or in windy areas, but they can quickly succumb to root diseases and pest problems if you plant them in low-lying areas where water tends to pool after heavy rains. Drought-favoring plants also do well in exposed areas, on berms and along the unshaded southern or western walls of buildings.

  Position plants adapted to wet soils in low spots, waterways and areas with poor drainage. The bottom line when placing plants in your landscape is not to waste time, energy and money caring for a plant that is not adapted to the spot you have set aside for it.

- **Wind-wise plantings.** In Florida, winter’s prevailing winds hail from the north or northwest. A solid fence or a row of evergreens situated on the north side of a house forms a barrier against cold winter winds and reduces evaporative water loss. Winds from the south, southeast and southwest predominate during summer months, when welcome air circulation cools outdoor living spaces and reduces moisture buildup on foliage.

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- **Made in the shade.** Position trees and shrubs strategically to improve your home’s heating and cooling capacity. Tree shade, for instance, can reduce air conditioning costs by an estimated 50 percent. Plant deciduous shade trees on the south, east and west sides of a house to cast shade in summer and let warming light enter windows in winter.

Caterpillars: Larvae of butterflies and moths. Chew on foliage, which creates skeletonized or notched leaves. Watch for greenish fecal pellets on leaves or below plants.

- **Natural enemies:** Wasps, predatory stink bugs, big-eyed bugs, birds, lizards.

- **Other controls:** Remove by hand (use pliers to remove stinging caterpillars), apply Bacillus thuringiensis ‘Kurstaki’ (most effective when caterpillars are small).

Chinch bugs: Adults 1/5” long, black with white patches on wings. Young nymphs are smaller, reddish and have a white stripe across their backs. Chinch bugs feed on St. Augustinegrass, often in stressed areas in full sun or near pavement. Injured turf yellows and dies.

- **Natural enemies:** Big-eyed bugs, earwigs, a parasitic wasp.

- **Other controls:** Avoid high fertilizer rates. Maintain St. Augustinegrass at height of 3” in sun and 4” in shade. Use chinch bug-resistant grass varieties when available. Spot-treat infestations with insecticides labeled for chinch bugs.

Mealybugs: Soft-bodied insects 1/16”–1/8” long with well-developed legs. Bodies and egg masses covered by powdery white wax. Attack leaves, twigs and roots and leave behind white, mealy wax deposits. Sooty mold or ants may also be present.

- **Natural enemies:** Lady beetles, lacewing larvae.
Common Landscape Pests
and Their Management

Ants: Three body segments. Range in size from 1/16”–1/2”, depending on species. Most species are not harmful. In the landscape, they do not affect plants but the bite and sting of fire ants and carpenter ants affects people. When ants are present, you may observe mounds, ants in trails and on plants.

*Natural enemies:* Phorid flies (decapitate fire ants), *Thelohania* fire ant disease.

*Other controls:* Bait effectively controls fire ants. Be sure material is dry/fresh. Apply in late afternoon or evening around edges of mound. Do not apply when ground or grass is wet. Do not disturb mound. Store baits in a cool environment.

Aphids: Winged or wingless pear-shaped bodies may be green, yellow, black, red or multi-colored. Typically found on new growth. Damaged leaves appear yellow, twisted or distorted; ants or sooty mold may also be present.

*Natural enemies:* Lady beetle (ladybug) adults and larvae, lacewing larvae, syrphid fly larvae, parasitic wasps.

*Other controls:* Prune infested plant parts. Apply insecticidal soaps or horticultural oils. Soil drench with product containing imidacloprid.

An air-conditioning system’s outdoor compressor/condenser unit uses less energy when it is shaded from direct sun during the day — but be careful not to block the unit’s airflow. If the warm discharge air cannot escape, the intake air temperature rises, causing the unit to operate less efficiently.

- **Plant matchmaking.** A common landscape “plan” scatters woody plants across an expanse of lawn, with no clear design pattern. While this may look the “norm,” the truth is that turf and woody ornamentals have different water, fertilizer and maintenance needs. All it takes is one misplaced shrub to disrupt mowing and irrigation patterns. Reduce maintenance and conserve water in the landscape by grouping plants in beds according to water requirements and maintenance needs.

- **The lowdown on grass.** For sunny recreational areas, turfgrass makes an excellent choice — but most types do not grow well in dense shade. In shady spots, if you want to cultivate a green carpet underfoot, plant groundcovers.

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**FYN Glossary Box**

**Evergreen:** a plant that retains at least some of its leaves year-round

**Deciduous:** a plant that sheds all of its leaves at one time each year
Plant Selection

Choosing plants is the fun part of landscaping! Florida’s climate supports countless varieties of plants — many of which are grown by local nurseries. The plants you choose determine how much maintenance your Florida-Friendly Yard will require and also how long your landscape will last. For example, fast-growing trees often have a shorter life span than slow-growing trees.

How can you be sure you are making the best plant choices? Begin the process by completing a site analysis of your yard (see pages 8–14). With that information in hand, use these steps as a guide to selecting the right plants for the right places in your Florida-Friendly Yard.

- **Focus first on low maintenance plants** suitable to your site. Once these plants are established in the right location, most require little, if any, supplemental water, fertilizers or pesticides.

- **Don’t want to water?** Select drought-tolerant plants suited to your soil. Once they are established, your watering chores will be done.

- **Welcome wildlife.** Provide flowering and fruiting plants to bring birds and butterflies into your yard. Florida is a stopover for many migrating and wintering butterflies and birds — design a landscape that caters to these colorful, winged creatures.

- **Plant for impact.** Limit the number of plants with high water and maintenance requirements, placing them where they will have the greatest visual impact.

- **Avoid invasives.** Do not plant noxious, invasive species. The State of Florida prohibits planting of Brazilian pepper (*Schinus terebinthifolius*), Australian

- For large, slow-moving pests, picking insects off by hand can often defeat the problem. Dispose of any captured insects so they do not return to feed again. Try one of these disposal methods:
  - Drop pests into soapy water or isopropyl alcohol.
  - Place pests in the freezer overnight.
  - Crush them and put them in your household trash.

- **Avoid using broad-spectrum pesticides.** They are not selective — they also kill beneficial insects and insects that aren’t problematic. Safe alternatives to traditional pesticides include insecticidal soaps and horticultural oils, both of which work to reduce populations of sucking insects. Products containing an extract of the bacterium *Bacillus thuringiensis* ‘Kurstaki’ take care of caterpillars.

- **Always treat for specific pests, and only treat the affected plant.**

- **Read all product labels carefully and follow them accordingly.** Remember that the label is the law! Do not attempt to mix your own chemicals or apply homemade recipes unless you have been properly trained to do so.

- **It is usually best to apply soaps, oils and other pesticides during the cooler part of the day to avoid injuring plants.** Always read the label to find out if any plants are listed as being sensitive to the product. To determine if the product will hurt your plants, apply it to a small portion of a leaf first, and check for leaf burn after 1–2 days. **Phytotoxicity** often looks like a burn on the edge of leaves.
reducing photosynthesis. Ants also signal the potential presence of pests. Ants feed on honeydew and often protect the insects that produce it.

If you see plant damage but few pests, beneficial insects may already be working on your behalf. These may include lady beetles (commonly called ladybugs) and their larvae, lacewings and their larvae, assassin bugs, spiders, parasitic wasps and parasitic flies (syrphid or hoverfly larvae and tachinid flies).

Tolerate some insect damage and leaf disease on plants. No one can maintain an insect- and disease-free landscape, and a little damage will not hurt your plants. Remember, in order to have the “good guys,” such as ladybugs, there must be some “bad guys,” or pests, for them to feed on. If a pest problem persists, take a sample of the damaged plant and pest to your Extension office for identification and suggestions on how to proceed using IPM techniques.

Treating Pest Problems

What do you do when you have a pest infestation or a disease outbreak? IPM focuses on using chemicals as a last resort. IPM methods form a first line of defense to deal with problems.

When pests are heavily concentrated on a plant, you can often reduce or eliminate the problem simply by removing the affected leaves or plant parts. Crush, burn or compost these infested plant parts to prevent the disease or insect from spreading.

FYN Glossary Box

Photosynthesis: the process that turns light energy into chemical energy in green plants

Woody Bug: The big-eyed bug is a beneficial insect often mistaken for a chinch bug.

Several other common landscape plants can become invasive in parts of Florida and should be avoided. The UF/IFAS Invasive Plants Working Group evaluates the invasive properties of plants and provides recommendations on their use. For a copy of the most recent recommendations from the IFAS Assessment of Non-Native Plants in Florida's Natural Areas, see your county’s UF/IFAS Extension office or visit http://plants.ifas.ufl.edu/assessment.html. For more information on invasive plants, see the website of the Center for Aquatic and Invasive Plants at http://aquat1.ifas.ufl.edu.

Aim for diversity. Create a mosaic of trees, shrubs, groundcovers, native grasses and wildflowers. Monocultures — large expanses of the same plant species — are prone to disease and insect infestation and aren’t as sustainable as a diverse plant community.

Keep grass useful. Plan turf areas to be functional and design them for easy maintenance. Define planting bed edges and shapes to accommodate your mower without tricky maneuvering.

Cope with a slope. Use groundcovers on slopes where grass may not thrive but the potential for runoff exists. Count on groundcovers to fill in shady areas where turf won’t survive.

Beg off quick fixes. Do not be fooled by the quick-fix appeal of fast-growing plants. Such plants require frequent pruning, which creates more clippings and yard waste. Also, fast growth yields lots of lush, green shoots — which can attract certain pests. Slow-growing plants may take longer to fill in your landscape, but they’ll ultimately last longer and create less work.

Upkeep tips. Do not overlook maintenance needs when designing your landscape. It’s hard to mow grass on sloped or in extremely wet areas, so avoid planting turf where you can’t easily cut it. Place hedges where you can access them easily from all sides — or trimming chores will quickly become nightmares.
**Florida Yard Tip:**

**Know Your Zone!**

The USDA and American Horticultural Society (AHS) describe plants in terms of the lowest and highest temperatures where they can be grown.

To use this information, you need to know:

- Your zones for heat tolerance and cold hardiness. Discover that information at these links:
  - **For cold:** [http://www.usna.usda.gov/Hardzone/hzm-se1.html](http://www.usna.usda.gov/Hardzone/hzm-se1.html)
  - **For heat:** [http://www.ahs.org/publications/heat_zone_finder.htm](http://www.ahs.org/publications/heat_zone_finder.htm)

- The zones for plants you want to grow. Unearth that information on plant tags, in reference books or on the EDIS website at [http://edis.ifas.ufl.edu](http://edis.ifas.ufl.edu) or the FYN website at [http://fyn.ifas.ufl.edu](http://fyn.ifas.ufl.edu).

Match the plants you want to grow with your growing zones and you will improve your odds of gardening success.

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**Floridata:**

- Encourage beneficial insects by choosing some plants that provide the nectar needed by adults and by minimizing the use of broad-spectrum pesticides.

**Identifying Pest Problems**

Inspecting plants helps identify pest problems early, before they get out of hand. You can give plants the once-over anytime you water by hand, mow or are tending to other outdoor chores. If you are not in your yard until the weekend, you will need to set aside a time twice or more each week to walk through the yard and look at plants. Some small insects complete their life cycles in one week, so a weekly wander through the yard may not be frequent enough.

Common plant pests in Florida include aphids, mealybugs, scales, whiteflies, thrips, plant-feeding mites and caterpillars. Often you will spot evidence of a pest’s activity before you see the insect itself. If you see curled, rolled or deformed leaves, mold on leaves or stems, many ants scurrying up and down plant stems or discolored “trails” on leaves, you are likely to find a pest lurking somewhere.

Detecting small insects and mites can be difficult. One method that works well is to flick the leaves of small branches against a sheet of white paper. Use a ten-power (10X) magnifying glass to search for movement or evidence of pests.

For pests that attach to the plant, such as scales and whitefly nymphs, look on the branches and on both the upper and undersides of leaves. Sooty mold on leaves is a telltale clue to an infestation by what are known as piercing-sucking insects. Aphids are one example. These pests pierce the plant with sharp mouthparts and suck the sap. Some piercing-sucking insects secrete a sugary substance called honeydew, on which the black-colored sooty mold fungus feeds and grows. Sooty mold doesn’t injure a plant directly, but it does block sunlight from leaves,
Avoiding Pest Problems

The way that you design and maintain your yard either establishes a barrier against pests — or throws out the welcome mat for them.

Follow these tips to prevent pests:

n Think before you plant. Each time you place a plant in a spot that’s not ideal, you will likely have to protect it from pests. Plants in unfavorable growing conditions (compacted soil, inappropriate pH or light, competition with weeds, etc.) are targets for pests! Choose plants that can tolerate the conditions in your yard.

n Choose insect- and disease-resistant plant varieties.

n Go easy on water and fertilizer. Too much can cause excessive growth, making plants vulnerable to some insects and diseases. Encourage healthy growth by applying fertilizer and water only when needed and in moderate amounts.

n Mowing grass too short and severely pruning trees and shrubs weakens them, inviting pests. Mow to the proper height and prune selectively.

n Use barriers to block pest entry.

Florida Yard Tip: Plant Selection Savvy

As you choose plants for your Florida-Friendly Yard, remember that plants do more than just look good. Many types pull double duty in the landscape, adding beauty and also fulfilling some other function — like providing privacy, attracting butterflies or bearing tasty fruit. Consider these plant characteristics as you design your landscape:

Plant traits that reduce maintenance and prevent runoff pollution

n Drought resistance  n Wind resistance
n Pest resistance  n Low nutritional requirements
n Non-invasiveness  n Slow growth

Plant traits that attract wildlife

n Cover and habitat  n Attractive flowers or foliage
n Seeds and nuts  n Edible fruits, flowers, leaves or roots
n Fleshy fruits and berries  n Thorns
n Nectar and larval food for butterflies  n Screen for privacy
n Red tubular flowers for hummingbirds  n Deciduous or evergreen

EDIS Biological Control Topics:

http://www.floridata.com
Plant Know-How
Throughout Florida, experts who can assist you in your plant choices abound. Try these services, most of which are free, for advice on putting the right plant in the right place:

- UF/IFAS Extension Service
- Florida Master Gardeners
- Florida Certified Horticultural Professionals
- Florida Native Plant Society
- Florida Division of Forestry
- Water Management Districts
- USDA Natural Resources Conservation Service
- Libraries

For More Information on Natives
While it may be rare to encounter a native Floridian, plants native to Florida prove easy to find in some areas. Some Florida native plants are widely available at local garden centers, and others are becoming more available as demand for them grows. Want to learn more about native plants suitable for your yard? Try these tips to get started:

- Visit parks, wildlife preserves, botanical gardens, FYN demonstration landscapes and nurseries to view native plants. Some plant nurseries specialize in Florida native plants.

- Keeping your plants healthy is the best defense against pests.
- Regular scouting, or keeping an eye on your yard’s plants, helps detect pest problems early, before significant damage occurs.
- Plants with aesthetic damage don’t necessarily need to be treated. Consider the amount of aesthetic damage you are willing to accept.
- If you see a pest outbreak, determine if a problem really exists or if natural enemies are already present and are working on your behalf.
- If pest control proves necessary, try the safest alternatives first, such as handpicking insects or pruning infected parts of a plant. If pesticides become necessary, choose the least harmful materials. The “softest” insecticides on beneficials and other non-target organisms (people, pets and wildlife) include insecticidal soap, horticultural oil, and microbials (e.g., spinosad, abamectin, Bacillus thuringiensis ‘Kurstaki’).
- Use pesticides only to spot-treat affected plants or lawn, not in blanket applications.

FYN Glossary Box
Native plants: plants that were present at the time of first European contact in Florida (about 1500 A.D.); a plant that occurs naturally in a particular region, state, ecosystem and habitat without direct or indirect human actions.

FYN Glossary Box
Spot-treatment: application of a pesticide to the problem plant or area, rather than a blanket application or “wall-to-wall” coverage.
MANAGE YARD PESTS RESPONSIBLY

Due to concerns about health, the environment, and pesticide resistance, pest control practices once taken for granted are now under scrutiny. Regular preventive pesticide applications are still common for some pests but are often unnecessary. Healthy plants can usually defend against or tolerate pest attacks, while beneficial insects, birds and other natural controls often suppress undesirable insects — which makes the preventive and indiscriminate use of pesticides ill-advised.

A better approach to managing pests — Integrated Pest Management (IPM) — emphasizes using a combination of environmentally friendly methods that focus on preventing pest problems. What are the basic building blocks of IPM?

- IPM begins at planting time, with pest-free and pest-resistant plants and a landscape design that encourages natural controls.

FYN Glossary Box

**Pesticide Resistance:** after repeated applications of a certain pesticide, some pests may adapt to the chemical and are not harmed by it — those individuals that survive then breed and pass the resistance genes to their offspring

**Integrated Pest Management:** a sustainable approach to managing pests by combining biological, cultural, physical and chemical tools in a way that minimizes economic, health and environmental risks

Florida Yard Tip:

**Trees Can Help**

Not sure where to start? Plant trees. Establishing a tree canopy is a great way to begin your Florida-Friendly Yard. Trees not only provide shade and wildlife habitat, but they also help to reduce stormwater runoff. Trees significantly increase the value of a home and lot.

According to the American Forestry Association, trees have other significant monetary benefits. Each year, a single tree provides $73 worth of air conditioning savings, $75 worth of erosion control, $75 worth of wildlife shelter and $50 worth of air pollution reduction. Compounding this total of $273 annually for 50 years at 5% interest results in a tree value of $57,151. The overall benefits far outweigh the initial cost of each tree.

- Visit the library or bookstores (particularly those at botanical gardens) to find good reference books on Florida native plants.
- Search the web for information on native plants. For some sources, see the references at [http://fyn.ifas.ufl.edu](http://fyn.ifas.ufl.edu) under the link for the FYN Handbook.
- Consider hiring a landscape architect/contractor or designer who is knowledgeable about native plants. For a consulting fee, you can ask a native plant expert simply to survey your yard and make suggestions — and you can still do the planting yourself.
- Consult the plant list in the back of this book (native plants are identified).

Remember: Just because a plant is native does not guarantee its success in your landscape. Always put the right plant in the right place.
Florida Yard Tip:

**Soaker Hoses**

After you invest your hard-earned cash in plants, count on an inexpensive solution to help establish them in the landscape — soaker hoses. These hoses seep or leak water along their length, delivering it to the soil around plantings. Lay the hose on top of the soil, or bury it slightly in soil or mulch. Landscape staple pins work great to hold the hose in place. Use the soaker hose until the plant is established and showing new growth, then store the hose for future use.