# Florida Grades and Standards for Nursery Plants 2015


Florida Department of Agriculture and Consumer Services
Adam H. Putnam, Commissioner

# Florida Grades and Standards for Nursery Plants

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# FLORIDA GRADES AND STANDARDS FOR PLANTS

## INTRODUCTION

Florida's unique and diverse climate provides environmental conditions favorable for the growth of about 25,000 plant species (T.J. Sheehan, Professor Emeritus, University of Florida). This vast number of plants, coupled with the many different sizes and shapes of plants that enter the market, clearly indicates the need for precise communication between buyer and seller. This is further necessitated as buyer and seller specify and negotiate plant quality. For example, the designation 'three gallon' can be interpreted in various ways, but in order to communicate effectively, additional specifications are needed. The Florida Grades and Standards for Plants, passed by the Florida Legislature in 1955 and codified with Section 581.031 (2)(3), Florida Statutes, establishes a vehicle for buyer and seller communication.

Consumer knowledge, preferences and awareness are demonstrated in their purchases of plants. Therefore, the nursery industry must precisely communicate the attributes of its valued product. To this end, as much detail as possible and other attributes which facilitate communication are used in these revised standards and categories of plants.


## ACKNOWLEDGMENTS

The Florida Department of Agriculture and Consumer Services gratefully acknowledges the assistance of the Florida Nursery, Grower and Landscape Association and its many members, who, along with the University of Florida's Institute of Food and Agriculture Sciences contributed their time and plant materials for the development of this manual. For this fifth edition of the Florida Grades and Standards, the Department acknowledges the contributions of the members of the ad hoc and section committees. Committee members included landscape architects, inspectors, designers, growers, and contractors.

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**G&S History**

1955 Bill Introduced to Legislature by Florida Nurserymen's and Growers Association
1959 First Edition
1963 Second Edition
1973 Third Edition
1998 Fourth Edition
2015 Fifth Edition

## PLANT NAMES

The accepted scientific name, according to the international code insofar as possible, and the preferred common name(s) for plants are used in this publication. The scientific name is needed to positively identify a plant. In addition, other scientific names (synonyms, horticultural names, invalid scientific names) and other common names are included.

Since many scientific names for plants are in dispute by plant taxonomists, the names listed in "The New Royal Horticultural Society Dictionary of Gardening" are used as authoritative. For changes made subsequent to the dates of these publications, individual specialists and taxonomists were consulted. We are grateful for the assistance of Dr. Patti Anderson, Botanist, Division of Plant Industry, Florida Department of Agriculture and Consumer Services who used the 3rd Edition of the Guide to the Vascular Plants of Florida, authored by R.P. Wunderlin and B. F. Hansen for taxonomic referencing.

The accepted scientific names and preferred common names listed will be used in compliance with the labeling requirement, Item 3, under General Requirements, until changed by competent authority. The 'other scientific names' and 'other common names' are included to assist the users of this publication in the standardization of plant names.

## CONTRACT GUIDELINES

**Verification of specified grades are to be determined at the time of delivery.** Grades determined at the time of initial inspection or during the course of conducting a regrading inspection shall be based on the growth characteristics and condition of the plant at the time of grading. The grade shall not be based on any future or predicted growth potential of the plant.

Within 30 days following plant delivery, if any of the parties identified in the contract have cause to believe that any trees, shrubs, groundcover or other horticultural materials are not of the specified grade, they may at their discretion request a regrading inspection by the Division of Plant Industry, and upon the findings provided, thereby seek further remedy by requesting replacements of plant materials or other corrective actions, including but not limited to legal redress.

## PLANTS NOT LISTED IN INDEX

Landscape architects and contractors have requested that quality of plants for which grades have not been established be consistent with those plants for which grade standards have been established.

The following paragraph is only a recommendation to be included in contracts, provided the landscape architect or landscape contractor wishes to ensure that the quality of plants whose grade has not been established will be Florida No.1 according to several grading factors. The following is not a part of the grading law, but it is binding under the contract and gives a basis for inspection and legal testimony if necessary.

> ALL PLANTS NOT LISTED IN GRADES AND STANDARDS FOR NURSERY PLANTS, PUBLISHED BY THE FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES, SHALL CONFORM TO A FLORIDA N0.1 AS TO: (1) HEALTH AND VITALITY, (2) CONDITION OF FOLIAGE, (3) ROOT SYSTEM, (4) FREEDOM FROM PEST OR MECHANICAL DAMAGE, AND, (5) HEAVILY BRANCHED AND DENSELY FOLIATED ACCORDING TO THE ACCEPTED NORMAL SHAPE OF THE SPECIES.

The tree section is meant to be used for ANY tree sold in Florida. To establish the grade for trees not listed, first determine the natural crown form, or growth habit of the tree, then identify which one of the three matrix types matches this form, and proceed through the grading process.

## NONCOMPLIANCE CASES OR VIOLATIONS

Any dispute over the grade of a plant(s) should be called to the attention of the Division of Plant Industry within 30 days following delivery to the landscape project, if the Division is expected to assist in settling the case. This is necessary to protect both the buyer and the seller. The grade of a plant can decline very rapidly if that plant is improperly handled or neglected, thus making regrading difficult.

Anyone considering a complaint should, for their own protection, see that the plant(s) in question receives the best of care and is kept segregated from other plants so that definite identity is maintained. Cases of dispute may be settled by:

1. Agreement of the buyer and the seller;

2. Having the plants in question regraded by an authorized representative of the Division of Plant Industry. The report of regrading inspection can then be used for (1) above or (3) below, or as evidence for legal action;

3. Action taken by the Division of Plant Industry relative to plant disease and insect problems.

## REGISTERING COMPLAINTS

All complaints or requests for regrading inspection should be made in writing and directed to the attention of the Chief Plant Inspector, Division of Plant Industry, P.O. Box 147100, Gainesville, Florida 32614-7100. The Chief Plant Inspector will direct the appropriate Division of Plant Industry representative to conduct the initial investigation of such complaints.

## UNDERSIZING AND SUBSTITUTION OF SPECIES

Noncompliance with plant size specifications should not be confused with plant grading regulations. If a landscape design, contract, bid or plant list specifies a Florida No. 1 grade for all plants, the contract or design usually specifies a certain size for each plant.

Plants may be undersized and make a specific grade, and not be the size specified in the contract.

**Undersizing is a breach of contract or bid but not a violation of Grades and Standards. A substitution of one species or cultivar for another is also a contract violation, but has no bearing on plant grading.**

## GENERAL REQUIREMENTS

Any landscape contract that specifies a grade shall be governed by the following requirements.

1. Be eligible for certification by the Division of Plant Industry; that is, meet tolerances for plant pests and all pertinent Division rules and regulations.

2. Originate from a registered nursery under inspection with the Division of Plant Industry, or certified and have met the requirements of Chapter 581, Florida Statutes, and Title 5B, Florida Administrative Code.

3. Meet the grade standards set forth hereafter.

4. Be correctly labeled as to name, grade and date of delivery. Plants shall be plainly and legibly labeled by the nurseryman to show the scientific or accepted common name, including variety and rootstock when applicable, and the grade. Only one name and grade label is needed on a group of plants of the same variety, rootstock and grade when addressed to one consignee, provided that the label is also marked to indicate the number of plants in the group for which the label is intended. Any invoice may be used in lieu of labels to indicate the number, name and grade of plants, provided such invoice accompanies the plants and a copy of the invoice is given to the consignee at the time of delivery.

5. Be living stock and not be in a dying condition or seriously broken, frozen or damaged.

# TREES

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## TREES

# GRADING TREES

## INTRODUCTION

Since most trees have a life expectancy of many years, it is important to plant quality trees. The quality or grade of a tree at planting can have a large impact on longevity in the landscape. Tree quality is based on trunk, branch, crown, leaf and root characteristics.

Large-maturing trees which are allowed to develop a double or multiple trunk should not be planted. These may be sturdy when they are small, but become increasingly prone to failure as they grow larger.

Trees graded **Florida Fancy** should have one dominant trunk up through the crown to the top of the tree. The exception would be for small-maturing trees (standard or multi-trunked) such as crape-myrtle, Japanese ligustrum and others. Branch diameter should not be larger than ⅔ the diameter of the trunk measured directly above the branch union. There should be no flush cuts anywhere on the tree, and no open wounds on the trunk or major branches. The crown should be full of foliage and show little, if any, evidence of chlorosis, necrosis, disease or insect infestation. The root ball should be appropriately sized (see any matrix, e.g., p. 13) and be free of severe defects.

Trees graded **Florida No. 1** may require some corrective pruning (Appendix A, Part 1, p. 29) so they develop good trunk and branch structure. They may have minor trunk injuries or could have other defects. Defects can be corrected by pruning the tree at planting and/or once or twice within a year or two after planting.

**Florida No. 2** is a lesser grade. These trees require major corrective pruning to form a structurally strong tree, or are misshapen. Large pruning dose will be required to develop a structure in these trees which will promote longevity. Defects may take several prunings over time to correct.

**Cull** is the lowest grade. These trees lack vigor or vitality and/or have poor trunk and branch structure or circling roots. They have other problems such as large open wounds, flush cuts or a loose root ball which may prevent them from becoming established in the landscape. Defects may take several years to correct or may not be correctable.

The better grades of trees will require less pruning after planting, and they are likely to establish more quickly. These have been properly trained and pruned in the nursery to develop a structure which resists damage from winds and other outside forces. Most tree maintenance budgets have not been developed to allow for pruning a tree after planting, so it makes sense to start with a tree which is healthy and well formed. If there is a large tree pruning allocation in the landscape maintenance budget, trees with the lesser grades may be trained into sturdy trees in the landscape by skilled arborists.

**Grades established for trees (Florida Fancy, Florida No. 1, and Florida No. 2) do not apply to trees used in wetland mitigation. For trees used in wetland mitigation, refer to the wetland section of this manual.**

**Grades and Standards do not apply to specialty trees like braided stems, poodles, espalier, topiary and bonsai.**

## STEPS FOR DETERMINING THE GRADE OF A TREE

**Step 1.** Choose the appropriate tree matrix type. (Matrix 1 – p. 13; Matrix 2 – p. 14; Matrix 3 – p. 15.)

Appropriate matrix type: _____

a) For multi-trunked small maturing trees such as crape-myrtle and wax privet (Index of Small-Maturing Trees, p. 26), measure the container size or root ball diameter of the tree you are grading and ignore the caliper. For standard small maturing trees, measure the caliper of the tree. For all small maturing trees, skip Step 2.

b) For all other trees, measure the caliper of the tree.

Caliper:_____

**Step 2.** Grade the tree according to trunk structure (see Fig. 1, p. 10). Trees with one dominant trunk are graded Florida Fancy. Those with double or multiple trunks are given a lesser grade depending on the size and location of the defect. Circle the appropriate grade below based on trunk structure only. This step is skipped if grading a small-maturing tree (Index of Small-Maturing Trees, p. 26).

| Florida Fancy | Florida No. 1 | Florida No. 2 | Cull |
|---|---|---|---|

**Step 3.** Grade the tree according to crown uniformity (see Fig. 2, p. 11). Circle the appropriate grade below based on crown uniformity only.

**Note: For crown uniformity there is no Florida No. 1 or cull grade.**

| Florida Fancy | Florida No. 2 |
|---|---|

**Step 4.** Record the lowest grade determined in Step 2 or 3.

**Grade:** _____

**Step 5.** If one of the following statements is true, reduce the grade determined in Step 4 by one. If two or more are true, reduce the grade by two. Reference tree caliper and appropriate matrix for 5a, 5b, and 5d. For multi-trunked small-maturing trees, use container size or root ball diameter (not caliper) for 5b and skip 5a and 5d.

| T | F | |
|---|---|---|
| ☐ | ☐ | a) Tree does not meet height requirement. |
| ☐ | ☐ | b) Crown does not meet diameter requirement. |
| ☐ | ☐ | c) Root ball is not secure enough to successfully transplant. |
| ☐ | ☐ | d) Root ball or container is undersized. If two or more sizes, reduce grade by two. |
| ☐ | ☐ | e) Tree with a trunk caliper larger than two inches requires a stake to hold the trunk erect. For multi-trunked trees, this applies to each trunk individually. |

**Grade:** _____

**Step 6.** If two of the following statements are true, reduce the grade determined in Step 5 by one. If three or more of the statements are true, reduce the grade by two. It takes only one true statement to reduce Florida Fancy to Florida No. 1.

T F

☐ ☐ a) Flush cuts were made when pruning branches from the trunk (Fig. 3, p. 12).

☐ ☐ b) Branch stubs were left beyond the collar (Fig. 3, p. 12). A branch stub can be removed and not reduce the grade.

☐ ☐ c) Open trunk wounds are evident. Wounds are considered open when they are greater than 10% of trunk circumference and/or more than two inches tall. Open or closed proper pruning cuts, surface abrasions or scratches to the bark should not be downgraded. See Glossary: **Trunk wound**.

☐ ☐ d) More than 10% of the crown exhibits necrosis, chlorosis or damage from pests, diseases or tip dieback.

☐ ☐ e) The crown is thin and sparsely foliated. Some species are thin and sparsely foliated in fall through early spring. Recently harvested field grown trees might also be thin and should not be downgraded.

☐ ☐ f ) There is included bark between the trunk and a major lateral branch or between main trunks (Appendix B, p. 37).

☐ ☐ g ) Trunks and/or major branches are touching.

**Step 7.** The tree is a Cull if one of the following conditions is true:

a) The top-most structural root (roots among largest on the tree) emerges from trunk (root collar) more than two inches below the top of the root ball surface. Soil, substrate and/or roots can be removed from the top ⅓ of the root ball to conform to this depth requirement. For example, see Appendix A, Part 2, p. 30-31.

b) One or more roots greater than 1/10 the trunk caliper, circle more than ⅓ of trunk in the top ½ of the root ball. All three conditions (> 1/10 trunk caliper, ⅓ around, top ½ of the root ball) must be true to grade as a Cull. One or more circling roots less than ⅓ the trunk diameter can be cut at the point just inside where they begin to circle. For multi-trunked trees, caliper equals the sum of the three largest trunks. Following cutting, the tree is no longer a Cull. For example, see Appendix A, Part 2, p. 30-31).

**Note: Grades and Standards do not apply to specialty trees like braided stems, poodles, espalier, topiary and bonsai.**

**Final Grade:** _____

## EXAMPLE I

Grade a container-grown live oak (pictured below) with a three-inch caliper trunk measured six inches above the ground. The tree is 14-feet tall with a 66-inch crown diameter. The crown is uniform. The container is 45 gallons. The bark is intact and there are no flush cuts evident. There are several recent pruning cuts (not closed) along the lower trunk.

**Step 1.** Choose the appropriate tree matrix type. (See Index of Trees on pages 19-26 for guidance).

**Appropriate matrix type: Type 1 Matrix, Tall and Wide. (The Index of Trees indicates Type 1 Matrix is appropriate for live oak.)**

Measure the caliper of the tree and locate it in the left column of the appropriate matrix.

The caliper of the example tree is three inches.

**Step 2.** Grade the tree according to trunk structure based on the information on p. 10. Trees with one dominant trunk are graded Florida Fancy. Trees with double or multiple trunks are given a lesser grade depending on the extent of the defect.

**Grade: Florida No. 2**
**The drawings and description of a Florida No. 2 in Fig. 1 most closely match the condition of the example tree. That is, the trunk divides into two equal-sized trunks in the lower ½ of the tree. This is difficult to see in this photograph. Look carefully at the bottom of the crown. See arrow in photo above right.**

**Step 3.** Grade the tree according to structural uniformity (see Fig. 2, p. 11).

**Grade: Florida Fancy**
**The example tree has a uniform crown as shown on p. 11.**

**Step 4.** Record the lowest grade determined in Step 2 or Step 3.

**Grade: Florida No. 2**
**The grade determined in Step 2 = Florida No. 2 and in Step 3 = Florida Fancy.**

*Quercus virginiana* - live oak
Florida No. 2

**Step 5.** If one of the following statements is true, reduce the grade determined in Step 4 by one. If two or more are true, reduce the grade by two. Reference Type 1 Matrix and three-inch caliper for 5a, 5b and 5d.

a) Tree does not meet height requirement.
b) Crown does not meet diameter requirement.
c) Root ball is not secure enough to successfully transplant.
d) Root ball or container is undersized. If two or more sizes, reduce grade by two.
e) Tree with a trunk caliper larger than two inches requires a stake to hold the trunk erect. For multi-trunked trees, this applies to each trunk individually.

**Grade: Florida No. 2**
**The grade determined in Step 4 is not reduced because all statements in Step 5 are false.**

**Step 6.** If two of the following statements are true, reduce the grade determined in Step 5 by one. If three or more of the statements are true, reduce the grade by two. It takes only one true statement to reduce Florida Fancy to Florida No. 1.

a) Flush cuts were made when pruning branches from the trunk (Fig. 3, p. 12).
b) Branch stubs were left beyond the collar (Fig. 3, p. 12). A branch stub can be removed and not reduce the grade.
c) Open trunk wounds are evident. Wounds are considered open when they are greater than 10% of trunk circumference and/or more than two inches tall. Open or closed, proper pruning cuts, surface abrasions or scratches to the bark should not be downgraded. See Glossary: **Trunk wound**.
d) More than 10% of the crown exhibits necrosis or chlorosis or damage from pests, diseases or tip dieback.
e) The crown is thin and sparsely foliated. Some species are thin and sparsely foliated in fall through early spring; recently harvested field grown trees might also be thin and should not be downgraded.
f ) There is included bark between the trunk and a major lateral branch or between main trunks. (Appendix B, p. 37.)
g ) Trunks and/or major branches are touching.

**Grade: Florida No. 2**
**The grade determined in Step 5 is not reduced because all statements in Step 6 are false.**

**Step 7.** The tree is a Cull if one of the following three conditions are true:

a) The top-most structural root (roots among largest on the tree) emerges from trunk (root collar) more than two inches below the top of the root ball surface. Soil, substrate and/or roots can be removed from the top ⅓ of the root ball to conform to this depth requirement. For example, see Appendix A, Part 2, p. 30-31.
b) One or more roots greater than 1/10 the trunk caliper circle more than ⅓ of trunk in the top ½ of the root ball. All three conditions (> 1/10 trunk caliper, ⅓ around, top ½ of the root ball) must be true to grade as a Cull. One or more circling roots less than ⅓ the trunk diameter can be cut at the point just inside where they begin to circle. For multi-trunked trees, caliper equals the sum of the three largest trunks. Following cutting, the tree is no longer a Cull. For example, see Appendix A, Part 2, p. 30-31.

**Final Grade: Florida No. 2**
**The grade determined in Step 2 is Florida No. 2. None of the statements in Steps 6 and 7 are true, so the grade remains Florida No. 2.**

## EXAMPLE 2

Grade a six-foot tall wax privet with a six-foot crown diameter grown in a 30-gallon container (pictured below). The tree stands erect by itself and root ball is secure enough to transplant. There is chlorosis on 4% or 5% of the crown, and the crown was sheared. There is bark included between the trunks but no trunks or major braches are touching one another. Skip Step 2 because you are grading a small-maturing tree (Index of Small-Maturing Trees, p. 26).

*Ligustrum japonicum* - wax privet

**Step 1**. Find the container size or root ball diameter. Choose the appropriate tree matrix (see Index of Trees on pages 19-26 for guidance). Skip Step 2.

**Appropriate tree matrix type: Type 3 Matrix, Short and Wide/Multi-Trunked. (The Index of Trees indicates Type 3 Matrix is appropriate for ligustrum.)**

**Step 2**. Skip because the tree you are grading is a small-maturing multi-trunked tree.

**Step 3.** Grade the tree according to structural uniformity (see Fig. 2, p. 11).

**Grade: Florida Fancy**
**The example tree has a small portion of the crown missing and most closely matches the Florida Fancy drawings in Figure 2.**

**Step 4.** Record the lowest grade determined in Step 3.

**Grade: Florida Fancy**
**Step 2 was skipped, and Step 3 = Florida Fancy.**

**Step 5.** If one of the following statements is true, reduce the grade determined in Step 4 by one. If two or more are true, reduce the grade by two. For multi-trunked, small-maturing trees, use container size or root ball diameter (not caliper) for 5b and skip 5a and 5d. Reference Type 3 Matrix for 5b.

a) Tree does not meet height requirement.
b) Crown does not meet diameter requirement.
c) Root ball is not secure enough to successfully transplant.
d) Root ball or container is undersized. If two or more sizes, reduce grade by two.
e) Tree with a trunk caliper larger than 2 inches requires a stake to hold the trunk erect. For multi-trunked trees, this applies to each trunk individually.

**Grade: Florida Fancy**
**There is no reason to reduce the grade from Step 4 since none of the above are true.**

**Step 6.** If two of the following statements are true, reduce the grade determined in Step 5 by one. If three or more of the statements are true, reduce the grade by two. It takes only one true statement to reduce Florida Fancy to Florida No. 1.

a) Flush cuts were made when pruning branches from the trunk (Fig. 3, p. 12).
b) Branch stubs were left beyond the collar (Fig. 3, p. 12). A branch stub can be removed and not reduce the grade.

c) Open trunk wounds are evident. Wounds are considered open when they are greater than 10% of trunk circumference and/or more than two inches tall. Open or closed, proper pruning cuts, surface abrasions or scratches to the bark should not be downgraded. See Glossary: **Trunk wound**.
d) More than 10% of the crown exhibits necrosis or chlorosis or damage from pests, diseases or tip dieback.
e) The crown is thin and sparsely foliated. Some species are thin and sparsely foliated in fall through early spring. Recently harvested field grown trees might also be thin and should not be downgraded.
f ) There is included bark between the trunk and a major lateral branch, or between main trunks. (Appendix B, p. 37.)
g ) Trunks and/or major branches are touching.

**Grade: Florida Fancy**
**The grade determined in Step 5 is not reduced because only one statement is true: (f ).**
**Two statements must be true in order to downgrade a Florida Fancy to Florida No. 1.**

**Step 7.** The tree is a Cull if one of the following conditions are true:

a) The top-most structural root (roots among largest on the tree) emerges from trunk (root collar) more than two inches below the top of the root ball surface. Soil, substrate and/or roots can be removed from the top ⅓ of the root ball to conform to this depth requirement. For example, see Appendix A, Part 2, p. 30-31.
b) One or more roots greater than 1/10 the trunk caliper, circle more than ⅓ of trunk in the top ½ of the root ball. All three conditions (> 1/10 trunk caliper, ⅓ around, top ½ of the root ball) must be true to grade as a Cull. One or more circling roots less than ⅓ the trunk diameter can be cut at the point just inside where they begin to circle. For multi-trunked trees, caliper equals the sum of the three largest trunks. Following cutting, the tree is no longer a Cull. For example, see Appendix A, Part 2, p. 30-31.

**Final Grade: Florida Fancy**
**None of the statements in Steps 6 and 7 are true, so the grade remains Florida Fancy.**

## STEP 2—Determining the Quality of Trunk Structure

**Instructions:** Locate the drawing, caption and associated text below that most closely represents the trunk structure of the tree you are grading. Select the appropriate tree grade at the end of Step 2 on page 4. For photographic examples, see pages 16-18 and 34-35. Skip Step 2 when grading small-maturing trees (Index of Small-Maturing Trees, p. 26).

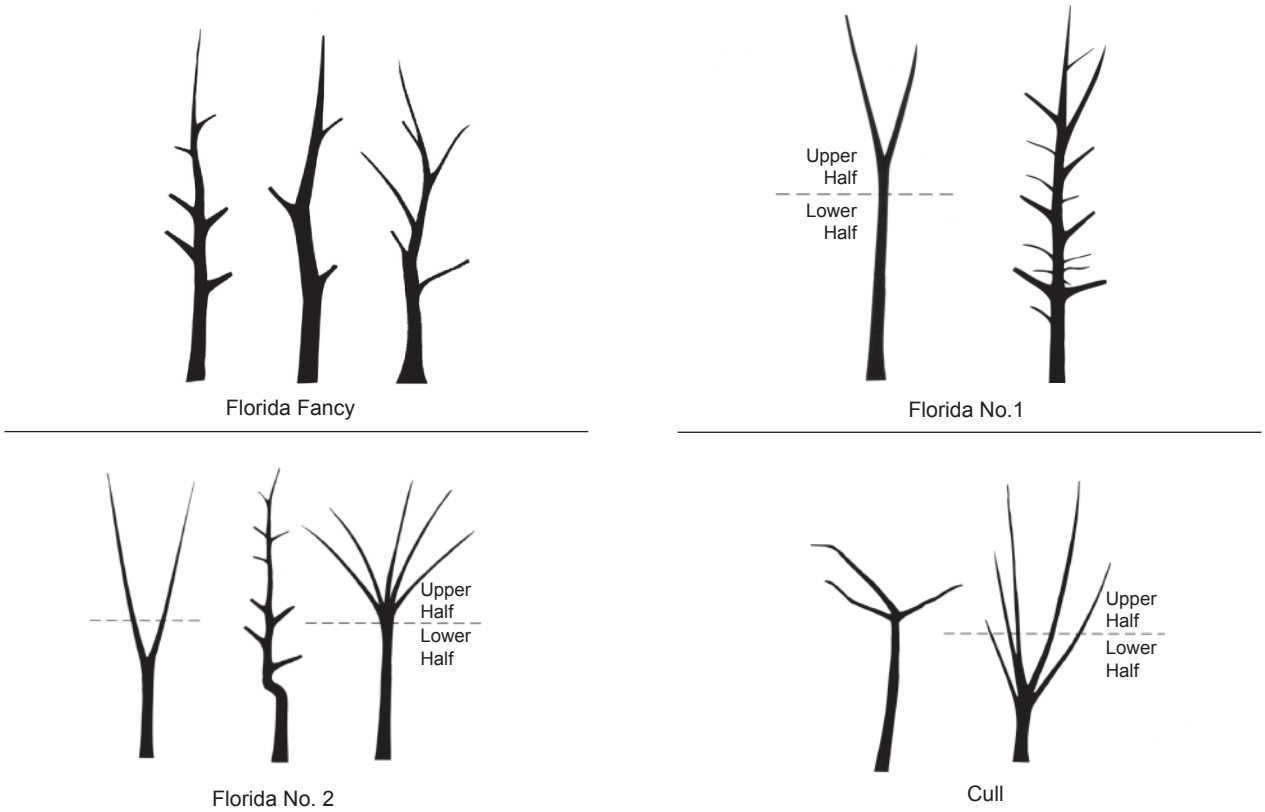



**Figure 1.**

**Florida Fancy** — There is one trunk, more or less in the center of the tree as shown above; trunk does not have to be perfectly straight. The tip of the leader on the main trunk must be intact and its terminal bud must be the highest part of the tree. No trunk or branch can have a diameter greater than ⅔ the trunk diameter measured directly above the branch union. If the trunk divides in two nearly equal diameter stems in the upper 10% of the tree, the trunk is not downgraded to a Florida No. 1.

**Florida No. 1** — The trunk divides into two nearly equal diameter trunks in the upper ½ of the tree. If one trunk is ⅔ or less than the diameter of the other trunk, they do not have equal diameters, making the tree a Florida Fancy. Pruning in the upper ½ of the tree to subordinate the competing trunk may leave a noticeable void in the crown. The tip of the leader on the main trunk must be intact and its terminal bud must be the highest part of the tree.

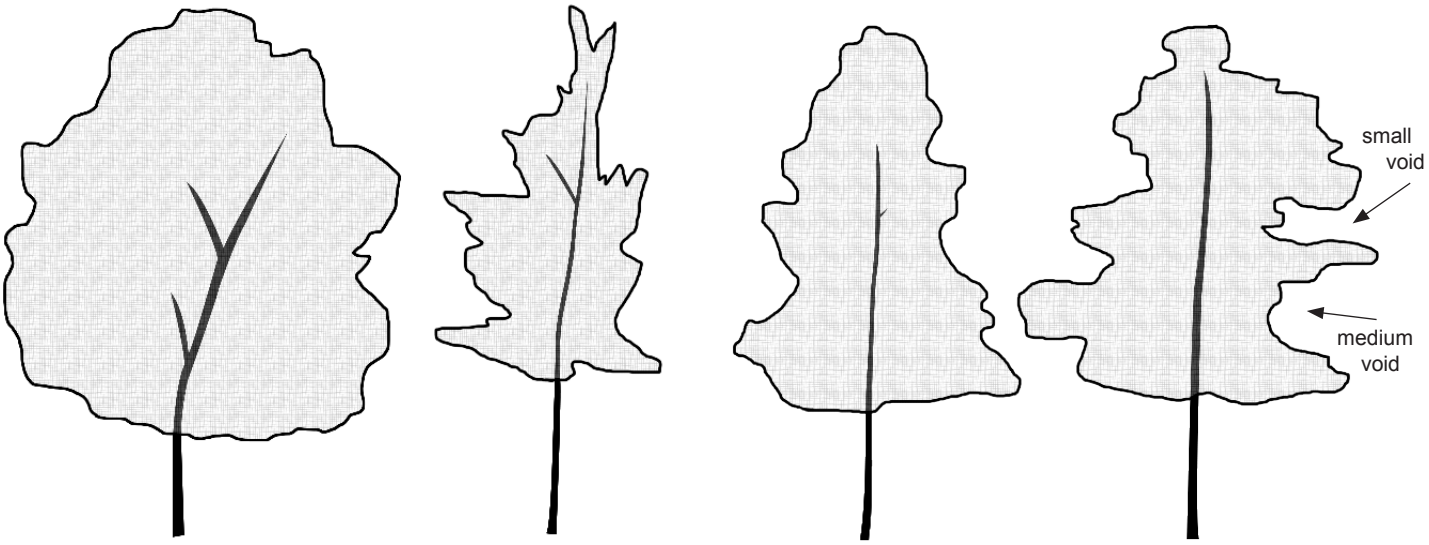
**Florida No. 2** — The trunk divides into two nearly equal trunks along the lower ½ of the tree or the trunk divides into three or more nearly equal diameter trunks in the upper ½ of the tree. Do not downgrade the tree if competing trunks are ⅔ or less the diameter of one main trunk measured above the union. Pruning to subordinate competing trunks will leave a large void in the crown. If there is a dogleg in the clear trunk portion of the tree, grade the tree a Florida No. 2. A dogleg in the crown of the tree is not a downgrading factor. (See Glossary: **Dogleg**).

**Cull** — The trunk divides into three or more nearly equal diameter trunks along the lower ½ of the trunk.

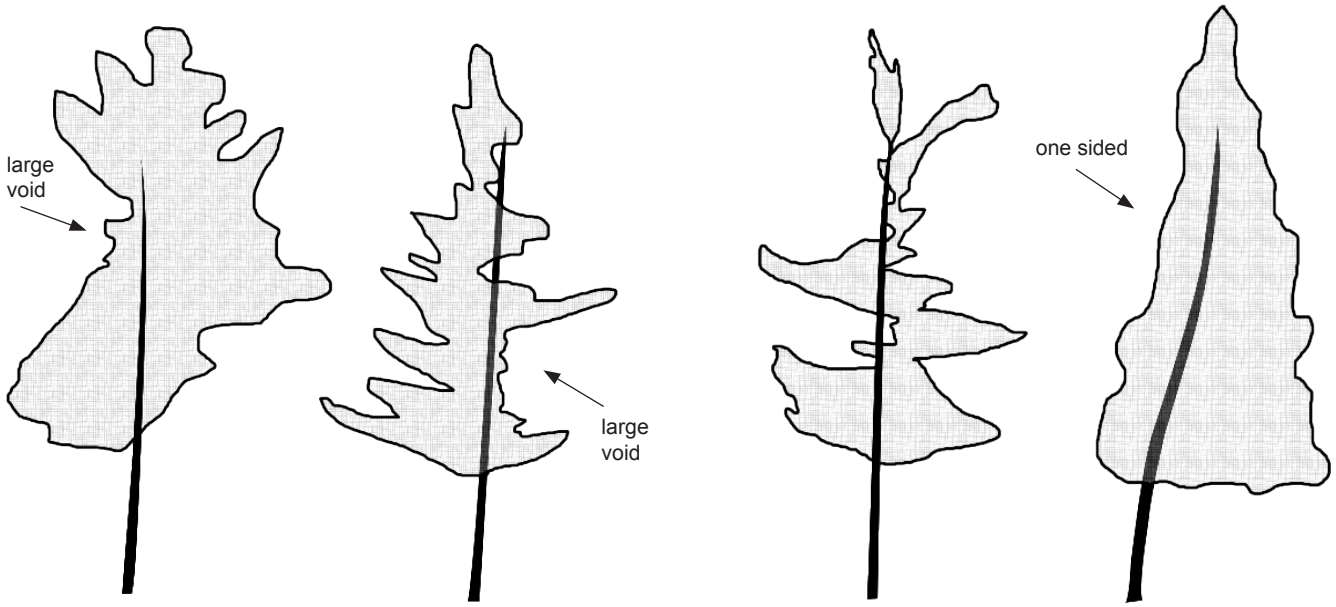
**Note:** See Appendix A - Best Management Practices, Part One, p. 29, for corrective pruning suggestion.

## STEP 3 — Determining the Crown Uniformity

**Instructions:** Identify the drawing, caption and associated text below that most closely represents the crown uniformity of the tree you are grading. Select the appropriate tree grade, Florida Fancy or Florida No. 2, at the end of Step 3 on page 4.




Florida Fancy




Florida No. 2

**Figure 2.**

**Florida Fancy** — There may be small to medium voids, and crown shapes may vary.

**Florida No. 2** — There are large voids, and/or the tree may be one sided.

Not all shapes and forms are represented here. These images include a sample of what would be considered acceptable for Florida Fancy and Florida No. 2. **Note:** For crown uniformity there is no Florida No. 1 or cull grade. Carry a Florida Fancy or Florida No. 2 grade to Step 4.

## Step 6 (a) — Determining if Pruning Cuts Were Made Correctly

**Instructions:** Locate the photograph, drawing, caption and associated text below which most closely represents the condition of the pruning cuts on the tree you are grading. Check the 'true' column in Step 6 (a & b) if incorrect pruning cuts were made.

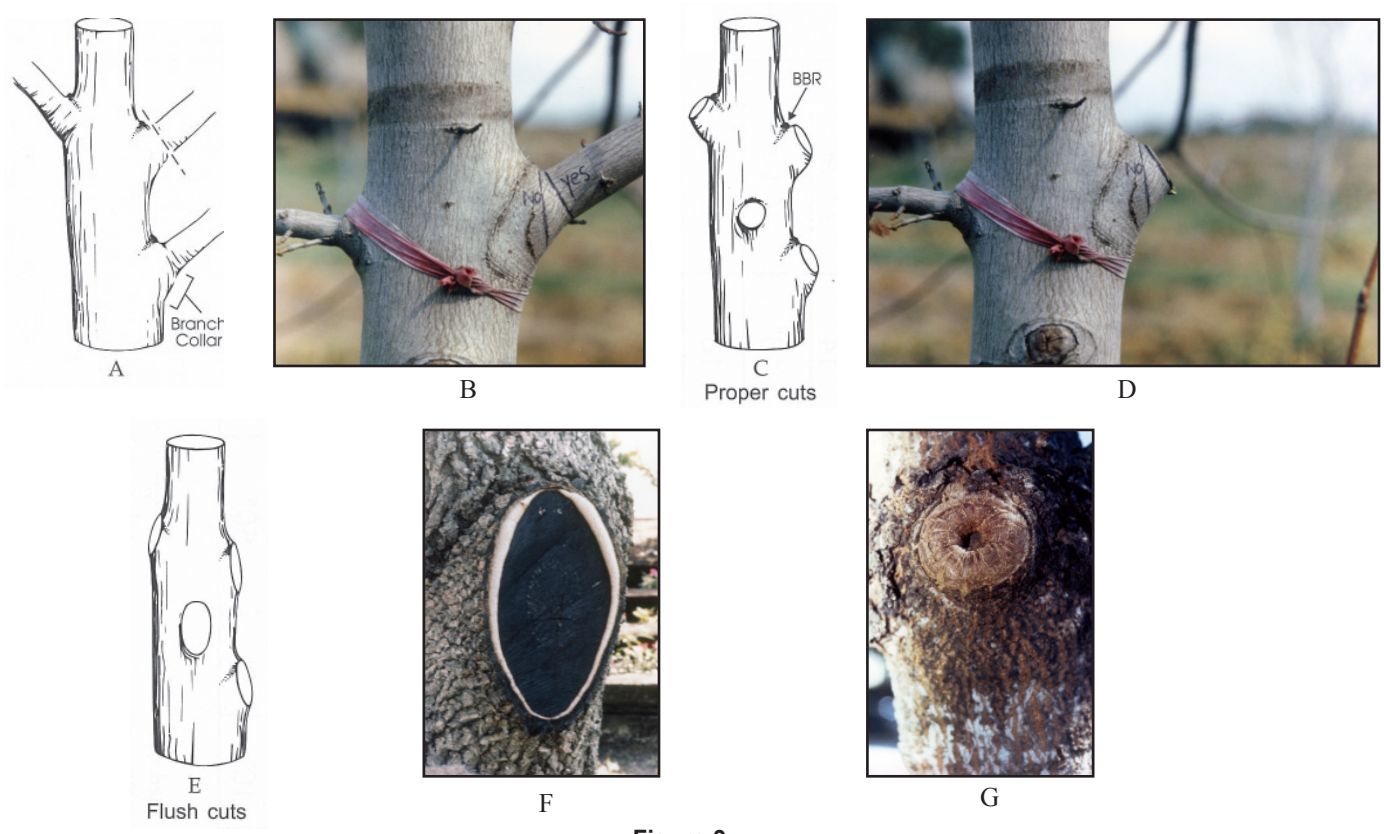



**Figure 3.**

**Figure 3A** — Notice the swelling at the base of each branch. This is branch and trunk tissue (referenced as the collar) which helps hold the branch securely on the trunk. A proper cut is made along the dashed line. Some species have no swelling at the base of branches, and it may be more difficult to determine exactly where to make a proper pruning cut. Always begin the cut to the outside of the branch bark ridge, and angle it away from the trunk.

**Figure 3B** — Cut along the line just to the left of the word 'yes' to properly remove the branch. If the cut is made closer to the trunk, this is a flush cut. If it is made farther from the trunk, a stub will be left.

**Figure 3C** — This shows how to properly remove branches from the trunk. Always cut to the outside of the branch collar and branch bark ridge (BBR). Notice that the BBR is still visible on top of the pruning cut and the pruning cut is nearly circular.

**Figure 3D** — The right hand side of photograph shows a properly executed pruning cut with BBR and collar intact.

**Figure 3E** — Never make a flush cut as shown here. Notice that the BBR is missing from the top of the pruning cut. This improper cut, usually oval, initiates trunk decay and can reduce growth in the nursery and landscape after planting.

**Figure 3F** — The pruning cut and the woundwood or callus which closes over a flush cut is often shaped like an oval. Woundwood is often missing from the top or bottom of a flush cut.

**Figure 3G** — Woundwood or callus around a proper pruning cut is circular.

TOP

**TYPE 1 MATRIX — TALL AND WIDE FORM**

**Examples:** black-olive, golden shower tree, live oak, mahogany, red maple, river birch, royal poinciana, southern magnolia, sycamore, winged elm

| Trunk caliper | Tree height greater than or equal to | Crown diameter greater than or equal to | B&B root ball diameter greater than or equal to | Container volume greater than or equal to |
|---|---|---|---|---|
| 1½” | 5’ | 34” | 20” | 15 Gal. |
| 2” | 6’ | 42” | 24” | 25 Gal. |
| 2½” | 7’ | 48” | 28” | 25 Gal. |
| 3” | 8’ | 54” | 32” | 45 Gal. |
| 3½” | 9’ | 5’ | 36” | 65 Gal. |
| 4” | 10’ | 6’ | 40” | 100 Gal. |
| 4½” | 12’ | 7’ | 44” | 100 Gal. |
| 5” | 14’ | 8’ | 44” | 100 Gal. |
| 5½” | 16’ | 9’ | 50” | 200 Gal. |
| 6” | 17’ | 10’ | 52” | 200 Gal. |
| 7” | 18’ | 11’ | 60” | 300 Gal. |
| 8” | 19’ | 12’ | 70” | 300 Gal. |
| 9” | 20’ | 13’ | 80” | 670 Gal. |
| 10” | 20’ | 14’ | 80” | 670 Gal. |

**Notes:**

1. Trees to be graded under this matrix are listed in the Index of Trees on pages 19-26.
2. Root ball depth on B&B stock shall be at least ⅔ of the root ball diameter shown. Trees grown in soils with high water table can have shallower root balls provided the root ball diameter is increased to the next larger tree size in the table.
3. For the purpose of determining minimum root ball size, hardened-off field grown trees can have a caliper up to one inch larger than indicated in the table.
4. If caliper does not appear in matrix, use the next smallest matrix caliper.

**Note:** ANSI standards Z60.1 designations for container size (e.g. #3, #15, #30, etc.) can be substituted for container volume.

TOP

**TYPE 2 MATRIX — TALL AND NARROW FORM**

**Examples:** bald-cypress, Eagleston holly, East Palatka holly, Italian cypress, Japanese blueberry, little gem magnolia, pine, southern red-cedar

| Trunk caliper | Tree height greater than or equal to | Crown diameter greater than or equal to | B&B root ball diameter greater than or equal to | Container volume greater than or equal to |
|---|---|---|---|---|
| 1½” | 5’ | 20” | 20” | 15 Gal. |
| 2” | 6’ | 22” | 24” | 25 Gal. |
| 2½” | 7’ | 25” | 28” | 25 Gal. |
| 3” | 8’ | 28” | 32” | 45 Gal. |
| 3½” | 9’ | 32” | 36” | 65 Gal. |
| 4” | 10’ | 36” | 40” | 100 Gal. |
| 4½” | 12’ | 48” | 44” | 100 Gal. |
| 5” | 14’ | 54” | 44” | 100 Gal. |
| 5½” | 16’ | 5’ | 50” | 200 Gal. |
| 6” | 17’ | 6’ | 52” | 200 Gal. |
| 7” | 18’ | 7’ | 60” | 300 Gal. |
| 8” | 19’ | 8’ | 70” | 300 Gal. |
| 9” | 20’ | 9’ | 80” | 670 Gal. |
| 10” | 20’ | 10’ | 80” | 670 Gal. |

**Notes:**

1. Trees to be graded under this matrix are listed in the Index of Trees on pages 19-26.
2. Root ball depth on B&B stock shall be at least ⅔ of the root ball diameter shown. Trees grown in soils with high water table can have shallower root balls provided the root ball diameter is increased to the next larger tree size in the table.
3. For the purpose of determining minimum root ball size, hardened-off field grown trees can have a caliper up to one inch larger than indicated in the table.
4. If caliper does not appear in matrix, use the next smallest matrix caliper.

**Note:** ANSI standards Z60.1 designations for container size (e.g. #3, #15, #30, etc.) can be substituted for container volume.

**TYPE 3 MATRIX — SHORT/WIDE AND MULTI-TRUNKED FORM**
**Examples:** bottle-brush, crape-myrtle, ligustrum, pigeon plum, sea-grape, silver buttonwood, tabebuia, wax-myrtle, yaupon holly

| Trunk caliper | Tree height greater than or equal to | Crown diameter greater than or equal to | B&B root ball diameter greater than or equal to | Container volume greater than or equal to |
|---|---|---|---|---|
| 1½” | 5’ | 24” | 20” | 15 Gal. |
| 2” | 6’ | 30” | 24” | 25 Gal. |
| 2½” | 6’ | 36” | 28” | 25 Gal. |
| 3” | 7’ | 42” | 32” | 45 Gal. |
| 3½” | 8’ | 4’ | 36” | 65 Gal. |
| 4” | 9’ | 5’ | 40” | 100 Gal. |
| 4½” | 10’ | 6’ | 44” | 100 Gal. |
| 5” | 12’ | 7’ | 44” | 100 Gal. |
| 5½” | 14’ | 8’ | 50” | 200 Gal. |
| 6” | 14’ | 8’ | 52” | 200 Gal. |

**Notes:**
1. Trees to be graded under this matrix are listed in the Index of Trees on pages 19-26.
2. Root ball depth on B&B stock shall be at least ⅔ of the root ball diameter shown. Trees grown in soils with high water table can have shallower root balls provided the root ball diameter is increased to the next larger tree size in the table.
3. For the purpose of determining minimum root ball size, harden off trees field grown can have a caliper up to one inch larger than indicated in the table.
4. If caliper does not appear in matrix, use the next smallest matrix caliper.
5. For multi-trunked small-maturing trees, find the container size or root ball diameter of the tree you are grading and ignore the caliper.
6. Multi-trunked, small-maturing trees should not be downgraded if they are shorter than the minimum height.

**Note:** ANSI standards Z60.1 designations for container size (e.g. #3, #15, #30, etc.) can be substituted for container volume.

## Florida Fancy Examples

Tree has one dominant trunk or is multi-trunked. Crown uniformity is Florida Fancy on all six crowns shown.

**Type 1 Matrix: live oak**

**Type 1 Matrix: black-olive**

**Type 2 Matrix: East Palatka holly**

**Type 2 Matrix: bald-cypress**

**Type 3 Matrix: wax privet**

**Type 3 Matrix: loblolly bay**

**Florida No. 1 Examples**

Tree is downgraded for a double trunk in top half, or a narrow crown.
Crown uniformity is Florida Fancy on all six crowns shown.

**Type 1 Matrix: live oak**

**Type 1 Matrix: sycamore**

**Type 2 Matrix: East Palatka holly**

**Type 2 Matrix: bald-cypress**

**Type 1 Matrix: red maple**

**Type 1 Matrix: sweetgum**

## Florida No. 2 Examples

Trees below represent a variety of downgrades including double trunk in the lower half, a dogleg in the clear trunk or a non-uniform crown. Not all downgrades are present on every tree.

**Type 1 Matrix: live oak**

**Type 1 Matrix: black-olive**

**Type 1 Matrix: red maple**

**Type 1 Matrix: sweetgum**

**Type 3 Matrix: citrus**

**Type 3 Matrix: loblolly bay**

## INDEX OF TREES COMMONLY SOLD BY FLORIDA NURSERIES LISTED BY COMMON NAME AND MATRIX TYPE

**Instructions:** Find the tree you are grading in the list below and note the matrix type in the left column. Return to Step 1 on page 4.

| Matrix type | Common Name* | Scientific Name |
|---|---|---|
| 3 | acacia, sweet | *Acacia farnesiana* |
| 1 | African tulip tree | *Spathodea campanulata* |
| 1 | almond, tropical | *Terminalia catappa* |
| 2 | American hophornbeam | *Ostrya virginiana* |
| 3 | arborvitae | *Platycladus orientalis* |
| 1 | ash | *Fraxinus* spp. |
| 1 | avocado | *Persea americana* |
| 2 | bald-cypress | *Taxodium distichum* |
| 3 | Barbados-cherry | *Malpighia emarginata* |
| 1 | basswood | *Tilia americana* |
| 1 | bauhinia | *Bauhinia* spp. |
| 2 | bay, loblolly | *Gordonia lasianthus* |
| 3 | bay, red | *Persea borbonia* |
| 2 | bay, sweet | *Magnolia virginiana* |
| 3 | beech, blue | *Carpinus caroliniana* |
| 1 | birch, river | *Betula nigra* & cvs. |
| 1 | black-gum | *Nyssa sylvatica* |
| 1 | black ironwood | *Krugiodendron ferreum* |
| 1 | black-olive | *Bucida buceras* |
| 3 | blue-beech | *Carpinus caroliniana* |
| 3 | bottle brush | *Callistemon* spp. |
| 3 | Brazilian beauty leaf | *Calophyllum antillanum* |
| 3 | carambola | *Averrhoa carambola* |
| 3 | cassia | *Cassia* spp. |
| 2 | cedar, eastern red | *Juniperus virginiana* |
| 1 | cedar, Japanese | *Cryptomeria japonica* |
| 2 | cedar, southern red | *Juniperus silicicola* |
| 3 | cherry, Barbados | *Malpighia emarginata* |
| 3 | citrus | *Citrus* spp. |
| 1 | cottonwood | *Populus* spp. |
| 3 | crape-myrtle | *Lagerstroemia* hybrids and cultivars |
| 3 | crape-myrtle, queen | *Lagerstroemia speciosa* |
| 2 | cypress, bald | *Taxodium distichum* |
| 2 | cypress, Italian | *Cupressus sempervirens* |
| 2 | cypress, Leyland | *X Cupressocyparis leylandii* |
| 2 | cypress, pond | *Taxodium ascendens* |
| 3 | dogwood, flowering | *Cornus florida* & cvs. |
| 3 | elder, yellow | *Tecoma stans* |
| 1 | elm, American | *Ulmus americana* |
| 2 | elm, lace bark | *Ulmus parvifolia* |
| 1 | elm, winged | *Ulmus alata* |

*Hyphens in the common names indicate that the name used does not correspond to the name ordinarily given to that particular group of plants. For example, yellow-elder is not a true elder, and China-fir is not a fir.

| Matrix type | Common Name | Scientific Name |
|---|---|---|
| 2 | eucalyptus | *Eucalyptus* spp. |
| 3 | fig, rusty | *Ficus rubiginosa* |
| 1 | floss silk tree | *Chorisia speciosa* |
| 3 | frangipani | *Plumeria rubra* |
| 3 | fringetree | *Chionanthus virginicus* |
| 3 | fringetree, Chinese | *Chionanthus retusus* |
| 3 | geiger tree | *Cordia sebestena* |
| 2 | ginkgo | *Ginkgo biloba* & cvs. |
| 3 | glorybush | *Tibouchina urvilleana* |
| 1 | golden rain tree | *Koelreuteria elegans* |
| 1 | golden shower tree | *Cassia fistula* |
| 1 | green buttonwood | *Conocarpus erectus* & cvs. & vars. |
| 3 | guava | *Psidium guajava* |
| 1 | gum, black | *Nyssa sylvatica* |
| 1 | gumbo limbo | *Bursera simaruba* |
| 2 | hackberry | *Celtis laevigata* |
| 3 | hawthorn | *Crataegus* spp. |
| 1 | hickory | *Carya* spp. |
| 1 | holly, American | *Ilex opaca* |
| 2 | holly, dahoon | *Ilex cassine* & vars. & cvs. |
| 2 | holly, Eagleston | *Ilex x attenuate* 'Eagleston' |
| 2 | holly, East Palatka | *Ilex x attenuata* 'East Palatka' |
| 2 | holly, Foster | *Ilex x attenuata* 'Fosteri' |
| 3 | holly, Nellie R. Stevens | *Ilex* 'Nellie R. Stevens' |
| 2 | holly, Savannah | *Ilex x attenuata* 'Savannah' |
| 2 | holly, weeping yaupon | *Ilex vomitoria* 'Pendula' |
| 3 | holly, yaupon | *Ilex vomitoria* |
| 1 | Indian-rubber tree | *Ficus elastica* |
| 1 | jacaranda | *Jacaranda mimosifolia* |
| 3 | Jamaican dogwood | *Piscidia piscipula* |
| 3 | Japanese blueberry | *Elaeocarpus decipens* |
| 2 | Japanese cedar | *Cryptomeria japonica* |
| 3 | Japanese fern tree | *Filicium decipiens* |
| 1 | Japanese pagoda tree | *Sophora japonica* |
| 3 | Jerusalem thorn | *Parkinsonia aculeata* |
| 1 | kapok | *Ceiba pentandra* |
| 3 | lignum-vitae | *Guaiacum sanctum* |
| 3 | ligustrum, wax privet | *Ligustrum japonicum* |
| 3 | loquat | *Eriobotrya japonica* |
| 3 | lychee | *Litchi chinensis* |
| 3 | Madagascar olive | *Noronhia emarginata* |
| 2 | magnolia, 'Bracken Brown' Beauty | *Magnolia grandiflora* 'Bracken Brown' Beauty |
| 2 | magnolia, 'Little Gem' | *Magnolia grandiflora* 'Little Gem' |
| 3 | magnolia, saucer | *Magnolia x soulangeana* |
| 1 | magnolia, southern | *Magnolia grandiflora* |
| 1 | mahogany | *Swietenia mahagoni* |
| 3 | mango | *Mangifera indica* & cvs. |

*Hyphens in the common names indicate that the name used does not correspond to the name ordinarily given to that particular group of plants. For example, yellow-elder is not a true elder, and China-fir is not a fir.

| Matrix type | Common Name | Scientific Name |
|---|---|---|
| 3 | mangrove, black | *Avicennia germinans* |
| 1 | maple, Florida | *Acer floridanum* |
| 3 | maple, Japanese | *Acer palmatum* |
| 1 | maple, red | *Acer rubrum* & cvs. |
| 1 | maple, silver | *Acer saccharinum* |
| 1 | mastic tree | *Sideroxylon foetidissimum* |
| 1 | oak, bluff | *Quercus austrina* |
| 1 | oak, laurel | *Quercus laurifolia* |
| 1 | oak, live | *Quercus virginiana* |
| 1 | oak, pin | *Quercus palustris* |
| 1 | oak, post | *Quercus stellata* |
| 1 | oak, sand live | *Quercus geminata* |
| 1 | oak, sawtooth | *Quercus acutissima* |
| 1 | oak, Shumard | *Quercus shumardii* |
| 1 | oak, southern red | *Quercus falcata* |
| 1 | oak, swamp-chestnut | *Quercus michauxii* |
| 1 | oak, water | *Quercus nigra* |
| 1 | oak, white | *Quercus alba* |
| 1 | oak, willow | *Quercus phellos* |
| 3 | olive, black | *Bucida buceras* |
| 3 | olive, spiny black | *Bucida molinetii* |
| 1 | paradise tree | *Simarouba glauca* |
| 3 | pigeon plum | *Coccoloba diversifolia* |
| 2 | pine | *Pinus* spp. |
| 3 | pine, screw | *Pandanus utilis* |
| 3 | pistache, Chinese | *Pistacia chinensis* |
| 3 | pitch-apple | *Clusia rosea* |
| 3 | plum, Chickasaw | *Prunus angustifolia* |
| 3 | plum, pigeon | *Coccoloba diversifolia* |
| 2 | podocarpus, Japanese yew | *Podocarpus macrophyllus* |
| 2 | podocarpus, nagi | *Podocarpus nagi* |
| 2 | podocarpus, weeping | *Podocarpus gracilior* |
| 3 | poinciana, dwarf | *Caesalpinia pulcherrima* |
| 1 | poinciana, royal | *Delonix regia* |
| 1 | poinciana, yellow | *Peltophorum pterocarpum* |
| 1 | red-bay | *Persea borbonia* |
| 3 | redbud | *Cercis canadensis* |
| 1 | river birch | *Betula nigra* & cvs. |
| 3 | rubber tree, Indian | *Ficus elastica* |
| 1 | satinleaf | *Chrysophyllum oliviforme* |
| 3 | screw-pine | *Pandanus utilis* |
| 3 | sea-grape | *Coccoloba uvifera* |
| 1 | silk-cotton tree, red | *Bombax ceiba* |
| 3 | silver buttonwood | *Conocarpus erectus* |
| 3 | small leaf clusia | *Clusia guttifera* |
| 3 | spiny black-olive | *Bucida molinetii* |
| 3 | stopper | *Eugenia* spp. |

*Hyphens in the common names indicate that the name used does not correspond to the name ordinarily given to that particular group of plants. For example, yellow-elder is not a true elder, and China-fir is not a fir.

| Matrix type | Common Name | Scientific Name |
|---|---|---|
| 1 | sweet gum | *Liquidambar styraciflua* & cvs. |
| 1 | sycamore | *Platanus occidentalis* |
| 3 | syzygium | *Syzygium* spp. |
| 3 | tabebuia | *Tabebuia* spp. |
| 1 | tamarind | *Tamarindus indica* |
| 1 | tamarind, wild | *Lysiloma latisiliquum* |
| 1 | tropical-almond | *Terminalia catappa* |
| 1 | tulip tree, African | *Spathodea campanulata* |
| 1 | tulip-poplar | *Liriodendron tulipifera* |
| 1 | tupelo | *Nyssa ogeche* |
| 3 | verawood | *Bulnesia arborea* |
| 3 | wax-myrtle | *Myrica cerifera* |
| 1 | weeping willow | *Salix babylonica* |
| 3 | wild-tamarind | *Lysiloma latisiliquum* |

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## INDEX OF TREES COMMONLY SOLD BY FLORIDA NURSERIES LISTED BY SCIENTIFIC NAME AND MATRIX TYPE

**Instructions:** Find the tree you are grading in the list below and note the matrix type in the left column. Return to Step 1 on page 4.

| Matrix Type | Scientific Name | Common Name* |
|---|---|---|
| 3 | *Acacia farnesiana* | acacia, sweet |
| 1 | *Acer floridanum* | maple, Florida |
| 3 | *Acer palmatum* | maple, Japanese |
| 1 | *Acer rubrum* & cvs. | maple, red |
| 1 | *Acer saccharinum* | maple, silver |
| 3 | *Averrhoa carambola* | carambola |
| 3 | *Avicennia germinans* | mangrove, black |
| 1 | *Bauhinia* spp. | bauhinia |
| 1 | *Betula nigra* & cvs. | birch, river; river birch |
| 1 | *Bombax ceiba* | silk-cotton tree, red |
| 1 | *Bucida buceras* | black-olive; olive, black |
| 3 | *Bucida molinetii* | olive, spiny black; spiny black-olive |
| 3 | *Bulnesia arborea* | verawood |
| 1 | *Bursera simaruba* | gumbo limbo |
| 3 | *Caesalpinia pulcherrima* | poinciana, dwarf |
| 3 | *Callistemon* spp. | bottle brush |
| 3 | *Calophyllum antillanum* | Brazilian beauty leaf |
| 3 | *Carpinus caroliniana* | blue-beech; beech,blue |
| 1 | *Carya* spp. | hickory |
| 1 | *Cassia fistula* | golden shower tree |
| 3 | *Cassia* spp. | cassia |
| 1 | *Ceiba pentandra* | kapok |
| 2 | *Celtis laevigata* | hackberry |
| 3 | *Cercis canadensis* | redbud |
| 3 | *Chionanthus retusus* | fringetree, Chinese |
| 3 | *Chionanthus virginicus* | fringetree |
| 1 | *Chorisia speciosa* | floss silk tree |
| 1 | *Chrysophyllum oliviforme* | satinleaf |
| 3 | *Citrus* spp. | citrus |
| 3 | *Clusia guttifera* | small leaf clusia |
| 3 | *Clusia rosea* | pitch-apple |
| 3 | *Coccoloba diversifolia* | pigeon plum; plum, pigeon |
| 3 | *Coccoloba uvifera* | sea-grape |
| 3 | *Conocarpus erectus* | silver buttonwood |
| 1 | *Conocarpus erectus* & cvs. & vars. | green buttonwood |
| 3 | *Cordia sebestena* | geiger tree |
| 3 | *Cornus florida* & cvs. | dogwood, flowering |
| 3 | *Crataegus* spp. | hawthorn |
| 1 | *Cryptomeria japonica* | cedar, Japanese; Japanese cedar |
| 2 | *Cupressus sempervirens* | cypress, Italian |
| 1 | *Delonix regia* | poinciana, royal |
| 3 | *Elaeocarpus decipens* | Japanese blueberry |
| 3 | *Eriobotrya japonica* | loquat |

*Hyphens in the common names indicate that the name used does not correspond to the name ordinarily given to that particular group of plants. For example, yellow-elder is not a true elder, and China-fir is not a fir.

| Matrix Type | Scientific Name | Common Name |
|---|---|---|
| 2 | *Eucalyptus* spp. | eucalyptus |
| 3 | *Eugenia* spp. | stopper |
| 1 | *Ficus elastica* | Indian-rubber tree; rubber tree, Indian |
| 3 | *Ficus rubiginosa* | fig, rusty |
| 3 | *Filicium decipiens* | Japanese fern tree |
| 1 | *Fraxinus* spp. | ash |
| 2 | *Ginkgo biloba* & cvs. | ginkgo |
| 2 | *Gordonia lasianthus* | bay, loblolly |
| 3 | *Guaiacum sanctum* | lignum-vitae |
| 3 | *Ilex* 'Nellie R. Stevens' | holly, Nellie R. Stevens |
| 2 | *Ilex cassine* & vars. & cvs. | holly, dahoon |
| 1 | *Ilex opaca* | holly, American |
| 3 | *Ilex vomitoria* | holly, yaupon |
| 2 | *Ilex vomitoria* 'Pendula' | holly, weeping yaupon |
| 2 | *Ilex x attenuata* 'East Palatka' | holly, East Palatka |
| 2 | *Ilex x attenuata* 'Fosteri' | holly, Foster |
| 2 | *Ilex x attenuata* 'Savannah' | holly, Savannah |
| 2 | *Ilex x attenuate* 'Eagleston' | holly, Eagleston |
| 1 | *Jacaranda mimosifolia* | jacaranda |
| 2 | *Juniperus silicicola* | cedar, southern red |
| 2 | *Juniperus virginiana* | cedar, eastern red |
| 1 | *Koelreuteria elegans* | golden rain tree |
| 1 | *Krugiodendron ferreum* | black ironwood |
| 3 | *Lagerstroemia* hybrids and cultivars | crape-myrtle |
| 3 | *Lagerstroemia speciosa* | crape-myrtle, queen |
| 3 | *Ligustrum japonicum* | ligustrum, wax privet |
| 1 | *Liquidambar styraciflua* & cvs. | sweet gum |
| 1 | *Liriodendron tulipifera* | tulip-poplar |
| 3 | *Litchi chinensis* | lychee |
| 1 | *Lysiloma latisiliquum* | wild-tamarind; tamarind, wild |
| 1 | *Magnolia grandiflora* | magnolia, southern |
| 2 | *Magnolia grandiflora* 'Bracken Brown' Beauty | magnolia, 'Bracken Brown' Beauty |
| 2 | *Magnolia grandiflora* 'Little Gem' | magnolia, 'Little Gem' |
| 2 | *Magnolia virginiana* | bay, sweet |
| 3 | *Magnolia x soulangeana* | magnolia, saucer |
| 3 | *Malpighia emarginata* | Barbados-cherry; cherry, Barbados |
| 3 | *Mangifera indica* & cvs. | mango |
| 3 | *Myrica cerifera* | wax-myrtle |
| 3 | *Noronhia emarginata* | Madagascar olive |
| 1 | *Nyssa ogeche* | tupelo |
| 1 | *Nyssa sylvatica* | black-gum; gum, black |
| 2 | *Ostrya virginiana* | American hophornbeam |
| 3 | *Pandanus utilis* | pine, screw |
| 3 | *Pandanus utilis* | screw-pine |
| 3 | *Parkinsonia aculeata* | Jerusalem thorn |
| 1 | *Peltophorum pterocarpum* | poinciana, yellow |
| 1 | *Persea americana* | avocado |

*Hyphens in the common names indicate that the name used does not correspond to the name ordinarily given to that particular group of plants. For example, yellow-elder is not a true elder, and China-fir is not a fir.

| Matrix Type | Scientific Name | Common Name |
|---|---|---|
| 1 | *Persea borbonia* | red-bay |
| 2 | *Pinus* spp. | pine |
| 3 | *Piscidia piscipula* | Jamaican dogwood |
| 3 | *Pistacia chinensis* | pistache, Chinese |
| 1 | *Platanus occidentalis* | sycamore |
| 3 | *Platycladus orientalis* | arborvitae |
| 3 | *Plumeria rubra* | frangipani |
| 2 | *Podocarpus gracilior* | podocarpus, weeping |
| 2 | *Podocarpus macrophyllus* | podocarpus, Japanese yew |
| 2 | *Podocarpus nagi* | podocarpus, nagi |
| 1 | *Populus* spp. | cottonwood |
| 3 | *Prunus angustifolia* | plum, Chickasaw |
| 3 | *Psidium guajava* | guava |
| 1 | *Quercus acutissima* | oak, sawtooth |
| 1 | *Quercus alba* | oak, white |
| 1 | *Quercus austrina* | oak, bluff |
| 1 | *Quercus falcata* | oak, southern red |
| 1 | *Quercus geminata* | oak, sand live |
| 1 | *Quercus laurifolia* | oak, laurel |
| 1 | *Quercus michauxii* | oak, swamp-chestnut |
| 1 | *Quercus nigra* | oak, water |
| 1 | *Quercus palustris* | oak, pin |
| 1 | *Quercus phellos* | oak, willow |
| 1 | *Quercus shumardii* | oak, Shumard |
| 1 | *Quercus stellata* | oak, post |
| 1 | *Quercus virginiana* | oak, live |
| 1 | *Salix babylonica* | weeping willow |
| 1 | *Sideroxylon foetidissimum* | mastic tree |
| 1 | *Simarouba glauca* | paradise tree |
| 1 | *Sophora japonica* | Japanese pagoda tree |
| 1 | *Spathodea campanulata* | African tulip tree; tulip tree, African |
| 1 | *Swietenia mahagoni* | mahogany |
| 3 | *Syzygium* spp. | syzygium |
| 3 | *Tabebuia* spp. | tabebuia |
| 1 | *Tamarindus indica* | tamarind |
| 2 | *Taxodium ascendens* | cypress, pond |
| 2 | *Taxodium distichum* | bald-cypress; cypress, bald |
| 3 | *Tecoma stans* | elder, yellow |
| 1 | *Terminalia catappa* | tropical-almond; almond, tropical |
| 3 | *Tibouchina urvilleana* | glorybush |
| 1 | *Tilia americana* | basswood |
| 1 | *Ulmus alata* | elm, winged |
| 1 | *Ulmus americana* | elm, American |
| 2 | *Ulmus parvifolia* | elm, lace bark |
| 2 | *X Cupressocyparis leylandii* | cypress, Leyland |

*Hyphens in the common names indicate that the name used does not correspond to the name ordinarily given to that particular group of plants. For example, yellow-elder is not a true elder, and China-fir is not a fir.

## INDEX OF SMALL-MATURING TREES

| Scientific Name | Common Name* |
|---|---|
| *Acacia farnesiana* | acacia, sweet |
| *Acer palmatum* and cultivars | Japanese maple |
| *Callistemon* spp. and cultivars | bottle-brush |
| *Cassia bicapsularis* | cassia |
| *Chionanthus retusus* | Chinese fringetree |
| *Chionanthus virginicus* | fringetree |
| *Citrus* spp. | citrus |
| *Guaiacum* spp. | lignum-vitae |
| *Ilex vomitoria* and cultivars | yaupon holly |
| *Lagerstroemia* hybrids and cultivars | crape-myrtle |
| *Ligustrum japonicum* | ligustrum, wax privet |
| *Magnolia x soulangiana* | magnolia, saucer |
| *Malpighia emarginata* | Barbados-cherry |
| *Myrica cerifera* | wax-myrtle |
| *Parkinsonia aculeata* | Jerusalem thorn |
| *Platycladus orientalis* | arborvitae |
| *Prunus* spp. and cultivars | plum |
| *Psidium* spp. | guava |
| *Tecoma stans* | elder, yellow |

*Hyphens in the common names indicate that the name used does not correspond to the name ordinarily given to that particular group of plants. For example, yellow-elder is not a true elder, and China-fir is not a fir.

**Note:** This list is not inclusive of all small-maturing trees. Other trees can be considered small-maturing as long as they naturally remain small at maturity.

## GLOSSARY OF TREE TERMS

**Balled and burlapped (B&B):** A soil ball containing roots of the plant wrapped and secured in natural or treated burlap and/ or wire.

**Branch stub:** The typically short portion of a branch left beyond the collar.

**Caliper:** Trunk caliper (trunk diameter) is measured six inches from the ground on trees up to and including four inches in caliper, and 12 inches above the ground for larger trees. Since trunks are seldom round, the average of the largest diameter and that perpendicular to it, is referred to as caliper. Any accurate device including a diameter tape may be used to measure caliper. Trees are placed in diameter classes in order to grade them. For example, trees in the two-inch class include those calipering two inches up to, but not including 2½ inches. Those in the 2½-inch class include trees calipering 2½ inches up to, but not including three inches, and so forth.

**Callus:** Undifferentiated, meristematic tissue with little lignin formed by the cambium layer; callus can form sprouts.

**Chlorosis:** A lightness or bleaching (typically yellowing) of green color in the foliage unlike the normal color. This indicates that the plant has not been maintained in the best of health. Chlorosis is not to be confused with normal yellowing of foliage common on many deciduous species late in the season. It is also not to be confused with yellowing of leaves on evergreens just prior to a new leaf flush, or with the normal yellow coloration of variegated foliage.

**Clear trunk:** That portion of the trunk maintained free of branches. The clear trunk is the lower portion of the trunk measured from the soil line up to the first major branch. Small temporary branches may exist on a clear trunk.

**Container:** A vessel made from plastic, fabric, wood or other material held above ground or partially in the ground that holds substrate and a root system.

**Collar:** The swelling formed by the trunk and branch wood intermingling in a union with a branch much smaller than the trunk.

**Corrective pruning:** Pruning which removes or shortens one or more branches or trunks to create strong, well-structured architecture.

**Crown:** The branches, twigs and leaves that make up the foliage portion of the tree.

**Crown diameter:** Crown diameter is the average of the widest branch spread and that perpendicular to it (see Fig. 4).

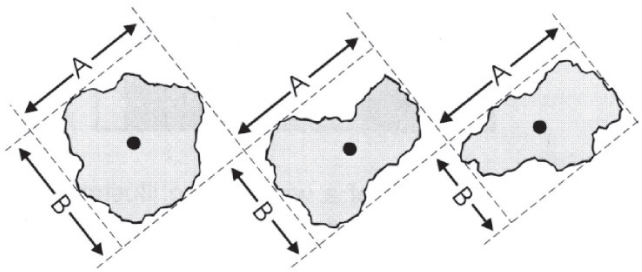



**Figure 4.** Add A and B together and divide by two to obtain crown diameter.

**DBH:** Diameter at breast height (4½ feet from the ground). This is not an appropriate method for measuring nursery trees.

**Dogleg:** A significant S-shaped deformation in the trunk below the crown (see Fig. 5). If there is a dogleg in the clear trunk portion, the tree is graded Florida No. 2. If the dogleg is in the crown portion of the tree, the tree is not downgraded.

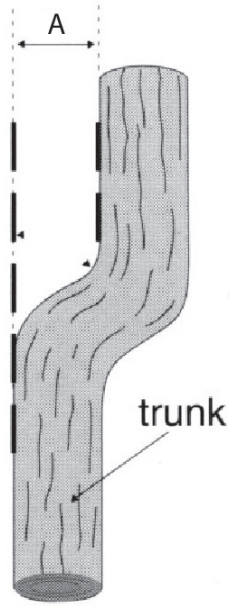



**Figure 5.** The distance 'A' can be no more than the trunk diameter.

**Dominant trunk:** The trunk that grows up through the crown of the tree and obviously dominates the rest of the branches.

**Flush cut:** A pruning cut made too close to, or flush with, the trunk. This type of cut is detrimental to tree health and is not recommended (Fig. 3, p. 12).

**Grow-bag:** A fabric container used for trees in field soil. Synthetic fabric grow bags must be removed prior to planting. Fabric used to hold substrate and the plant above ground is considered a container.

**Hardened-off trees:** Field-grown trees that are balled and burlapped in the nursery with visible roots growing through the burlap (Fig. 6).

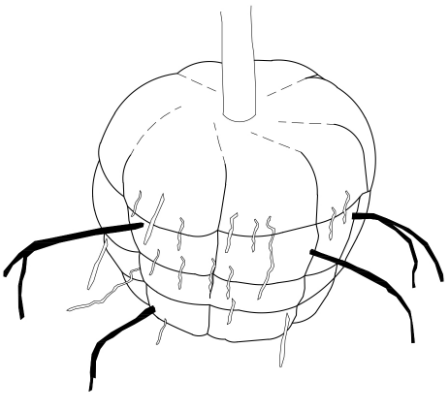


**Figure 6. Hardened-off** trees have roots growing through the burlap.

**Included bark:** Bark between a branch and trunk or between trunks that is squeezed together in the branch union (see page 37).

**Leader:** That part of the trunk that extends into the top ¼ on the tree.

**Major lateral branches:** Branches growing from the main trunk that are among the largest on the tree.

**Multi-trunked:** Several stems growing from the ground or from a short trunk.

**Necrosis:** Dead, typically brown, foliage and/or stem tissue.

**Root ball diameter:** The average diameter of the widest portion of the root ball and that perpendicular to it.

**Small-maturing:** Trees that remain small in stature, even in old age.

**Specialty trees:** A formal, man-manipulated plant form, either tree or shrub, developed and maintained by frequent clipping and shearing. Such forms include sheared pyramids, espaliers, columns, animal topiaries, large bonsai and other special shapes. Grades and Standards do not apply to specialty trees.

**Standard:** Tree trained to grow with a single trunk below the crown.

**Subordination (subordination pruning):** Removing the terminal, typically upright or end portion of a parent branch or stem to slow growth rate so other portions of the tree grow faster.

**Tree height:** The distance from the ground to the top most portion of the tree (see Fig. 7). On small, multi-trunked trees such as crape-myrtle, Japanese ligustrum and wax-myrtle, tree height is measured to the top of the main body of the crown.

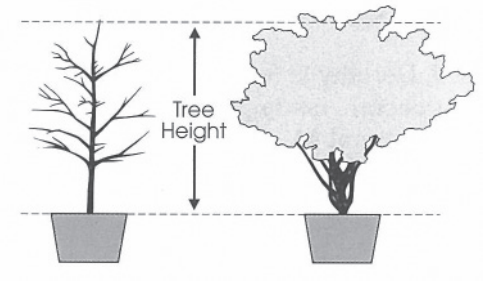



**Figure 7.** Measuring tree height.

**Trunk wound:** Wood (xylem) exposed due to injury (from mechanical, biological, or environmental agents) that killed or removed bark. Wounds are considered open when they are greater than 10% of trunk circumference and/or more than two inches tall. The following are not considered trunk damage: scrapes, surface abrasions or discoloration; shallow gouges; evidence of rubbing that does not expose wood; closed pruning wounds, or the woundwood growing over or around any wound.

**Vitality:** Ample growth as a result of cultural conditions.

**Vigor:** Ample growth as a result of genetic capacity.

**Woundwood:** Differentiated woody tissue forming around a wound, such as a pruning cut; typically follows callus.

## APPENDIX A - BEST MANAGEMENT PRACTICES (BMP)

**IMPORTANT NOTE: This BMP Appendix is NOT part of the grading process!**

### Introduction

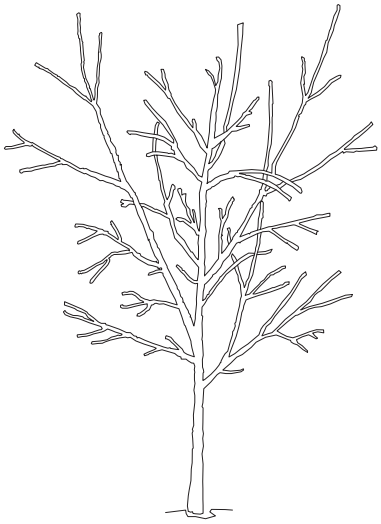
The Best Management Practices (BMP) contained within this section are NOT part of the grading process. Specifying that trees meet a particular grade in the Grades and Standards for Nursery Plants does not imply that the practices outlined in the BMPs are recommended or required. They are presented to teach the best available research- and experience-based practices associated with tree planting and maintenance. Their use is completely optional unless the contract specifications and details call for their inclusion, in which case they are a part of the contract, not the grading process.

### Part One:
### Pruning Before, At, or After Planting

Trees may be delivered with a dominant trunk, but without one leader to the top of the tree. Florida Fancy and Florida No. 1 grades both meet this condition. Under normal nursery practices, it is impractical to maintain every tree with one leader to the very top of the tree. Trees can be pruned before planting, at planting, or after planting without impacting establishment or root growth. Trees pruned as suggested below, generally develop better structure at maturity than those not receiving this treatment (Kristoffersen et al. 2010; Gilman 2014). Following pruning, the tree must meet the grade called for by the project.

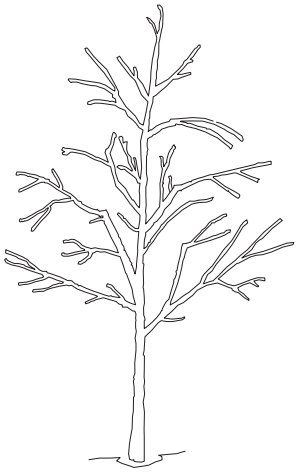
The illustrations below are for the very simple case of two stems competing with the central leader. Real-world scenarios are more complicated and require a skilled professional to make judgments as to which branches should be pruned and by how much. This can depend on the tree species, time of year, extent of defects and other factors. Refer to the University of Florida Landscape Plants website at http://hort.ifas.ufl.edu/woody/pruning.shtml for more detail.

**Several stems competing with leader**



**Remove stems competing with leader**

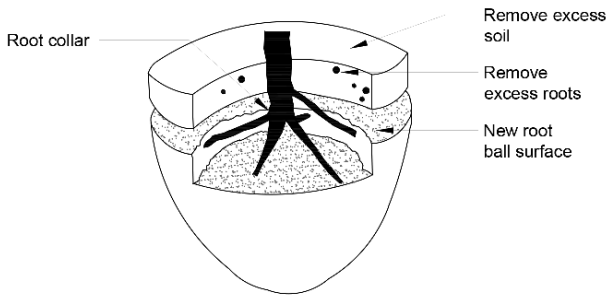
**After pruning, one leader dominates crown**



## Part Two:
## Root Ball Correction

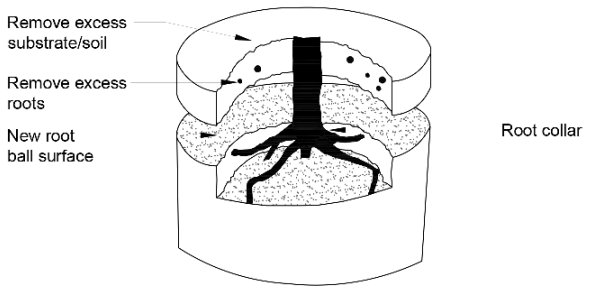
Distance between the substrate or soil surface and the root collar is largely set by the original planting depth in the nursery. The root collar is the point where the top-most structural roots meet the trunk and may or may not be associated with a swelling depending on tree species or age. In some cases, the root collar may be too deep in the root ball. Substrate soil, and/or roots can be removed so the root collar is closer to the root ball top surface. Roots circling or crossing over structural roots can be removed by cutting at the point just before a root turns abruptly to circle or plunge (descend) deeper into the root ball. Roots growing at the edge of the root ball can be removed at time of planting.

### Remove soil and roots over the root collar



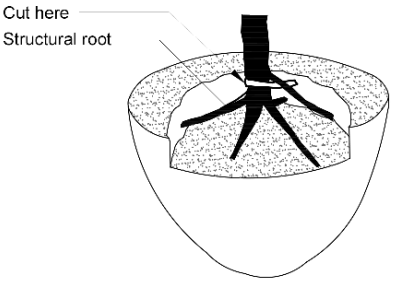

Tree planted too deeply in root ball.
Remove excess soil and roots.

### Remove soil and roots over the root collar



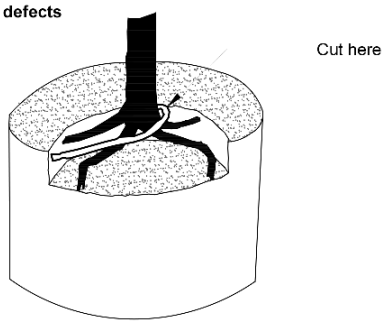

Tree planted too deeply in root ball.
Remove excess soil and roots.

**Remove defects**



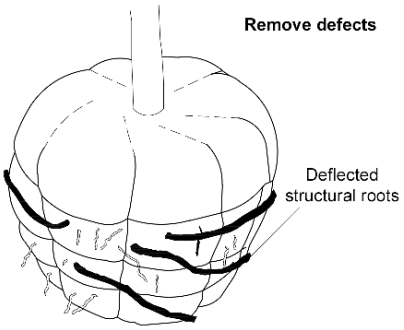

Structural (large) roots shown in black.
Remove defective root shown in white.

**Remove defects**



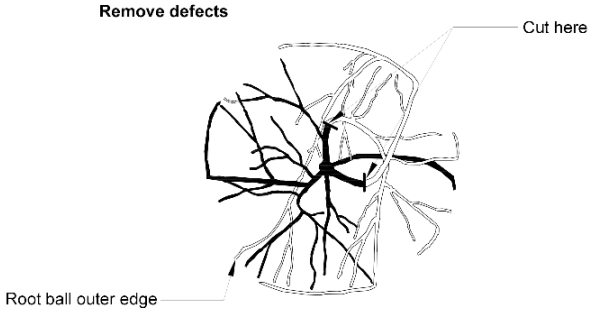

Four structural roots shown in black.
Remove root (white) growing over structural roots.

**Remove defects**




Remove structural roots deflected on the outer edge of root ball.

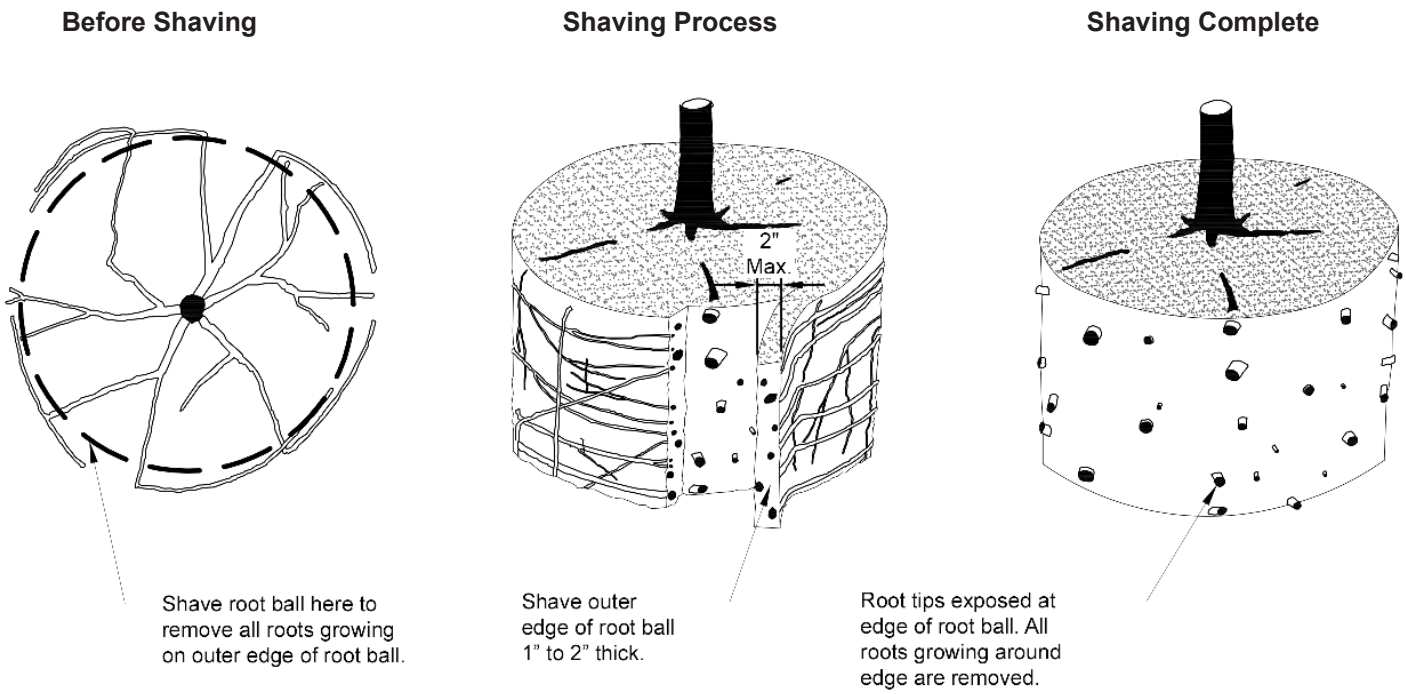
**Remove defects**




Cut structural root just before they make abrupt turn by cutting tangent (parallel) to the trunk (two cuts shown).
Note: Not all roots in the root ball are shown.

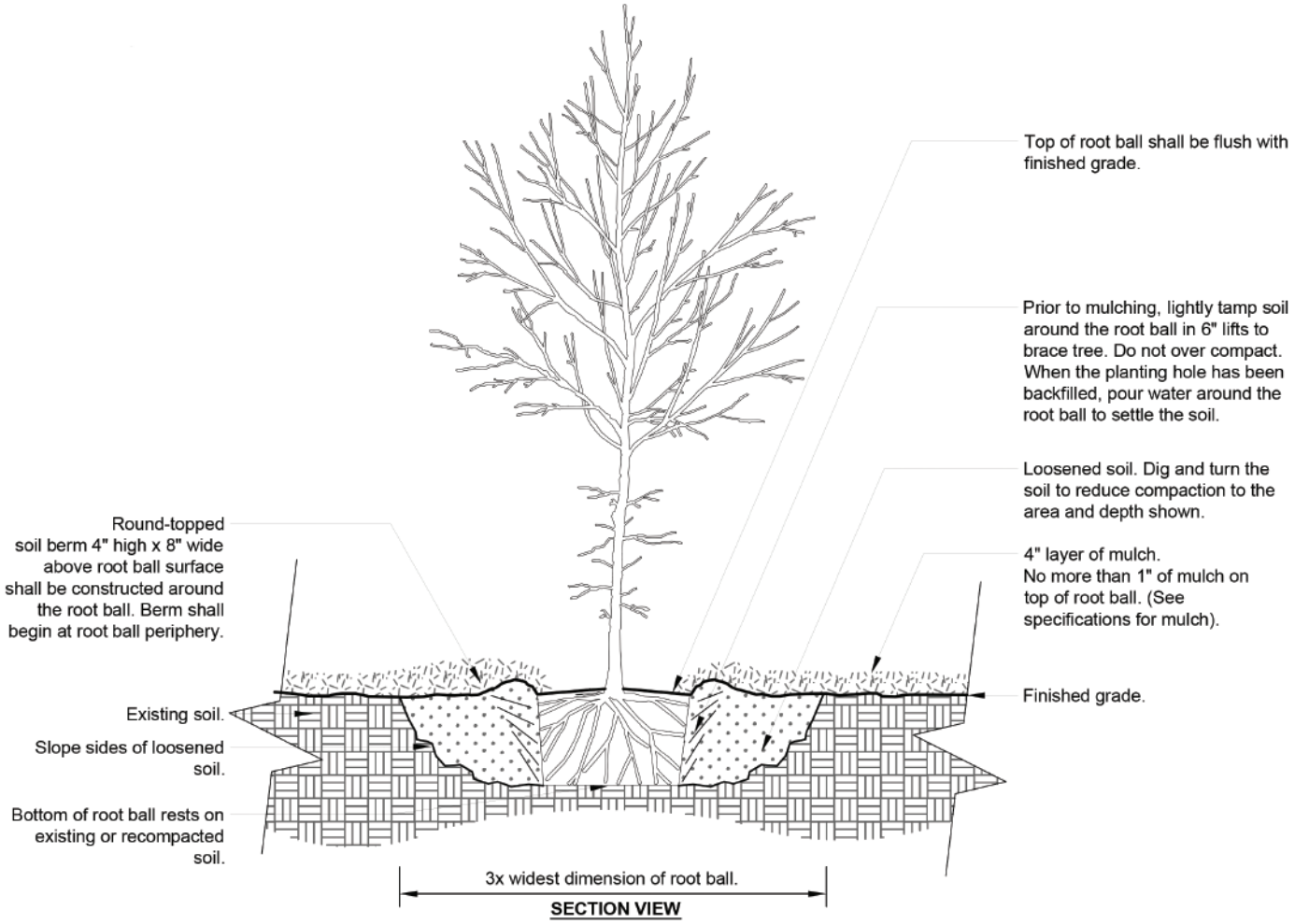
**Root Ball Correction (continued)**

It has been recognized that trees cannot be grown without roots present on the outer edge of the container or hardened-off field-grown root balls. Roots growing up, down and around the edge is a normal condition on nursery-grown trees. Woody (non-fibrous) roots can be removed individually at planting just prior to where they turn. The outer one or two inches (depending on root ball size) of a container root ball can be shaved from the root ball.



**Part Three:**
**Planting Detail**

The generalized planting detail presented below is designed for a well-drained, good soil. Modify with written specifications and details as needed. Examples of these in dwg. and pdf. formats can be found at http://hort.ifas.ufl.edu/woody/details-specs.shtml.




**Note:** Details from pages 29-32 are printed from open-source, editable, and free details and specifications. Thanks to the Urban Tree Foundation, Visalia, California for permission to use these images.

**Part Four:**
**Irrigation After Planting and During Establishment**

Regular irrigation after planting is essential for survival and establishment of almost all trees. Establishment is the amount of time required for trees to grow a sufficient root system to support growth in their planted environment. Regular irrigation after planting encourages rapid root growth that is essential for establishment. Irrigation also helps maintain and encourage the desirable dominant leader in the tree crown on large-maturing shade trees. Instead of a dominant leader, trees that are under-irrigated during the establishment period can die back, and often develop undesirable, low, codominant stems and double leaders that can split from the tree later.

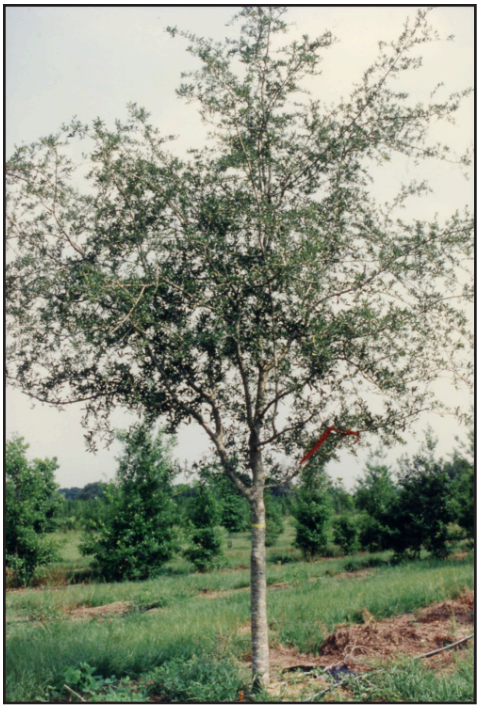
| Size of nursery stock | Irrigation schedule for vitality | Irrigation schedule for survival |
|---|---|---|
| < 2-inch caliper | Daily for two weeks, every other day for two months, weekly until established | Two to three times weekly for two to three months |
| 2 - 4-inch caliper | Daily for one month, every other day for three months, weekly until established | Two to three times weekly for three to four months |
| > 4-inch caliper | Daily for six weeks, every other day for five months, weekly until established | Twice weekly for four to five months |

Table notes:
1. At each irrigation, apply two to three gallons per inch trunk caliper to the root ball surface. Apply it in a manner so all water soaks the entire root ball. Do not water if root ball is wet/saturated on the irrigation day.
2. When irrigating for vitality, delete daily irrigation when planting in winter or when planting in cool climates. Establishment takes three (hardiness zones 10-11) to four (hardiness zones 8-9) months per inch trunk caliper. Never apply irrigation if the soil is saturated.
3. When irrigating for survival, trees take much longer to establish than regularly irrigated trees. Irrigation may be required in the normal hot, dry portions of the following year.

## APPENDIX B - SHADE TREE GRADING EXAMPLES

**1.** Florida Fancy live oak in winter. There is one dominant trunk.

**2.** Florida Fancy live oak in late spring. The dominant trunk curves slightly up through the crown. This is perfectly acceptable for a Florida Fancy.



**3.** Florida Fancy live oak. Major branches are less than ⅔ the trunk diameter. Several small diameter branches are growing upright at the top of the tree. These can be removed, or preferably cut back to a more horizontal branch, to ensure the trunk remains dominant.

**4.** Florida Fancy southern magnolia in spring. One trunk dominates the tree.

**5.** Florida No. 1 live oak. There is one dominant trunk in the lower half of the tree, but the trunk forks in the top half. If one of the two small trunks at the top of the tree were removed, the tree would probably grade to a Florida Fancy. Another alternative which takes less foliage out of the tree is to cut one of the two trunks back to a more horizontally oriented branch.

**6.** Florida No. 2 live oak. The large branch on the right is larger than ⅔ the trunk diameter and is in the lower half of the tree, making it a Florida No. 2.

**7.** Take out the right hand stem at the top of the tree, and this Florida No. 1 becomes a Florida Fancy.

**8.** Two equally sized trunks originate from the lower half of the tree, making this a Florida No. 2. Remove the left trunk now, and in about 18 months the crown will probably be upgraded to at least a Florida No. 1.

**9.** The diameter of a branch relative to the trunk is an important comparison that is made in the Tree Section of the Grades and Standards. Measure the branch diameter just beyond the union and beyond the swelling that may be present at the base of the branch. Measure the trunk diameter just above the branch union. The tree is downgraded if the branch diameter is greater than ⅔ the trunk diameter.

**10.** This is a Florida Fancy trunk because none of the branches are larger than ⅔ the diameter of the trunk. Note that the trunk does not have to be straight on a Florida Fancy.

**11.** This trunk has a slight dogleg but not enough to downgrade it to a lower grade.

**12.** This trunk has a dogleg nearly bad enough to downgrade the tree. If the dogleg was worse, the tree would be downgraded. This bend in the trunk is not a downgrade for two reasons: 1) it is in the crown of the tree, and 2) it is not severe enough to downgrade the tree.

**13.** Note the included bark in the branch union. The branch bark ridge is not visible because it is included inside the union. The union is shaped like the letter V.

**14.** Note the included bark in the branch union. The branch bark ridge is not visible because it is included inside the union. The union is shaped like the letter V.

**15.** There is no included bark in this union. The branch bark ridge is clearly visible in the union as a raised area of bark tissue.

**16.** There is no included bark in this union. The branch bark ridge is clearly visible in the union as a raised line of bark tissue. The union is more or less shaped like the letter U.

## REFERENCES FOR TREES


Broschat, Timothy K. and Alan W. Meerow. 1991. Betrock' s reference guide to Florida landscape plants. Betrock Information Systems, Inc. 427 pp.

Brummitt, R. K. and C. E. Powell. 1992. Authors of plant names. Royal Botanic Gardens, Kew, Great Britain. 732 pp.

Burch, Derek, Daniel B. Ward, and David W. Hall. 1988. Checklist of the woody cultivated plants of Florida. Extension Sale Publication SP-33. Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL. 80 pp.

Correll, Donovan S. and Helen B. Correll. 1982. Flora of the Bahama Archipelago. J. Cramer, Hirschberg, Germany. 1692 pp.

Everett, Thomas H. 1982. The New York Botanical Garden illustrated encyclopedia of horticulture, 10 vols. Garland Publishing, Inc., New York, NY. 3596 pp.

Godfrey, Robert K. 1988. Trees, shrubs and woody vines of northern Florida and adjacent Georgia and Alabama. University of Georgia Press, Athens, GA. 734 pp.

Hansell, Dorothy E. (ed.) 1970. Handbook of hollies, A special issue on Ilex. The American Horticultural Magazine. 49 (4): 150-330.

Huxley, Anthony (ed.) 1992. The new Royal Horticultural Society dictionary of gardening, 4 vols. The Stockton Press, New York, NY. 3353 pp.

Kartesz, John T. 1994. A synonymized checklist of the vascular flora of the United States, Canada, and Greenland. 2nd edition. Timber Press, Portland, OR. 2 vols. 622 & 816 pp.

Krussman, Gerd. 1985. Manual of cultivated conifers. Timber Press, Portland, OR. 361 pp.

Mabberley, D. J. 1989. The plant-book. Cambridge University Press, Cambridge. 706 pp.

Staff of Liberty Hyde Bailey Hortorium. 1976. Hortus third. MacMillan Publishing Co., Inc., New York, NY. 1290 pp.

United States Department of Agriculture, Soil Conservation Service. 1982. National list of scientific plant names, 2 vols. SCS-TP-159. 416 + 438 pp.

van Geldren, D. M. 1986. Conifers. Photographs by J. R. P. van Hoey Smith. Royal Boskoop Horticultural Society. Timber Press, Portland, OR. 375 pp.

# PALMS

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## PALMS

# GRADING PALMS

## INTRODUCTION

Florida Grades and Standards for Palms is constructed to measure only the health of palms at the time of delivery. Palm health is measured by an examination of the leaves, trunk and root ball.

These health characteristics are defined in a format used in calculating the grade of a palm. Form and dimensional characteristics are preferential criteria and are not used in the grading process. Therefore, palm grading is a process using this document, and palm specifying is a separate process left to the design professional. This document contains two glossaries of terms: one for palm grading and one for palm specifying. The glossary used by specifiers is included in the Processes for Specifying Palms.

This practical approach allows contractors, municipalities, inspectors and others charged with grading palms, to grade objectively using quantifiable benchmarks to identify quality-grown palms with health characteristics that have the best chance of transplant success.

The grade of the palm is assigned at the time of delivery. Although design specifications may require palms be maintained at a particular grade for a period of time, that requirement is outside the scope of this document.

## GLOSSARY OF PALM GRADING TERMINOLOGY

The following terms are presented for use in the grading process.

**Abrupt tapering:** A taper greater than 10% within the top foot of the woody trunk, reducing the trunk diameter, indicating a stressed condition.

Abrupt taper

**Chlorosis:** The loss of chlorophyll from leaves resulting in light green, yellow, orange, or white tissue. The presence of chlorosis denotes a nutrient deficiency, a physiological problem or the presence of a disease.

Chlorosis

**Clustering palms:** Palms that naturally have more than one trunk.

**Container Grown Palm:** Palms grown in container allowing transplanting without cutting roots. The roots must be completely contained within the container.

**Depression:** Mechanically produced indentation into the pseudobark that can indicate damage to underlying vascular tissue.

**Excellent leaf:** A fully emerged leaf (all leaflets are fully expanded) with a strong petiole with less than 1% of the area showing chlorosis, necrosis, nutrient deficiencies, leaf spots, pests or insect damage, or physical damage.

**Extreme succulence:** Soft, tender, elongated, weak petioles caused by over-fertilization, over-irrigation or over-crowding in the nursery. The palm may not survive when transplanted. Typically identified by weak elongated petioles.

Extreme succulence

**Field Grown Palm:** Palms grown and harvested from the ground by cutting the roots.

**Good leaf:** A fully emerged leaf (all leaflets are fully expanded) with a strong petiole with 1% to 10% of the area showing chlorosis, necrosis, nutrient deficiencies, leaf spots, pests or insect damage, or physical damage.

**Grade:** A designation of palm health assigned at the time of delivery using this document to evaluate the palm. One of three grades is possible: Florida Fancy, Florida No. 1 or Florida No. 2.

## GLOSSARY OF PALM GRADING TERMINOLOGY

**Leaf count:** The number of fully emerged (all leaflets are fully expanded) good or excellent leaves counted during the grading process.

**Necrosis:** Desiccated plant tissue typically but not necessarily brown, tan or gray in color.

**Primary Trunk:** Trunks ¾ or greater the height of the tallest clear trunk in clustering palms and single trunk palms intentionally grown with more than one trunk.

**Pseudobark:** Outer non-vascular portion of the trunk. Pseudobark damage can be unsightly but can also indicate damage to underlying vascular tissue.

**Pup scars:** Scars near the base of the trunk in clonally produced palms (palms propagated by division or propagated from offshoot removal; e.g., *Phoenix dactylifera*) that are the result of offshoot or pup removal. These scars present no health risk to the palm.

**Re-grade:** An official re-grade is conducted by the Florida Department of Agriculture and Consumer Services Division of Plant Industry. The request must be submitted to the Chief Plant Inspector, Division of Plant Industry within 30 days following delivery.

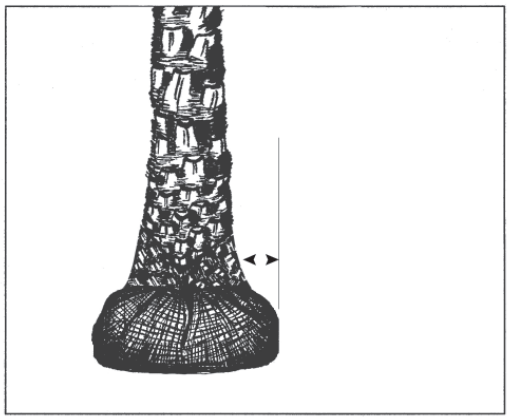
**Root ball measurement:** Measurement from the lowest part of the trunk exclusive of exposed roots or persistent leaf bases perpendicular out to the edge of the root ball for field grown palms. Gradable palms in containers are not subject to root ball measurements.

**Tipped Leaf:** A specified procedure of shortening the leaves by cutting the leaf tips. Tipped leaves are not gradable therefore this must occur after the grading process.

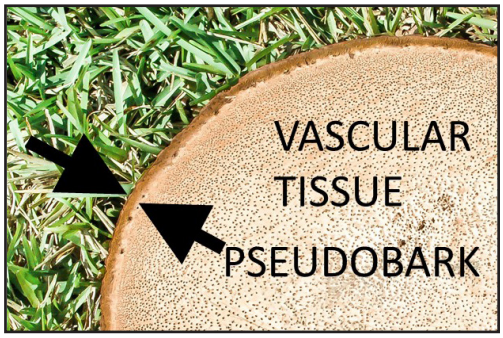
**Vascular tissue:** Water and carbohydrate conducting plant tissue that is covered by the outer non-vascular pseudobark.

**Vertical fissures:** Naturally occuring vertical expansion cracks. These present no health risk to the palm when less than one-inch deep.

Pup scars



Root ball measurement



## REQUIREMENTS FOR LEAF COUNT AND ROOT BALL MEASUREMENT

Each of the palm species in Table 1 has been assigned a minimum leaf count of good or excellent leaves and root ball measurment to qualify as gradable. Note that minimum leaf counts are to establish a root-to-shoot ratio for transplant success, and are not necessarily the recommended leaf counts for established palms.

Species not listed in Table 1 are graded using the downgrading and eliminating factors other than the minimum leaf count and root ball measurement. For clustering palms and single trunked palms intentionally grown with more than one trunk, each primary trunk is graded as a single trunk palm. The final grade of the palm is the lowest grade applied to the primary trunks.

Use the grading forms to evaluate eliminating and downgrading factors.

**Table 1. Palms Commonly Used in Florida**
**(Revised March 2016)**

| SCIENTIFIC NAME | COMMON NAME | MINIMUM LEAF COUNT* | | | MINIMUM ROOT BALL MEASUREMENT** IN INCHES BASED ON OVERALL HEIGHT (OA) | | |
|---|---|---|---|---|---|---|---|
| | | FL FANCY | FL No. 1 | FL No. 2 | ## ft or less = ## inches | More than ## ft and less than ## ft = ## inches | More than ## ft = ## inches |
| *Acoelorraphe wrightii* | Paurotis Palm | 6 | 5 | 4 | 4 at any OA | | |
| *Adonidia merrillii* | Christmas Palm | 6 | 5 | 4 | 6 at any OA | | |
| *Archontophoenix alexandrae* | Alexandra Palm | 5 | 4 | 3 | 6 at any OA | | |
| *Archontophoenix cunninghamiana* | Piccabeen Palm | 5 | 4 | 3 | 6 at any OA | | |
| *Arenga engleri* | Dwarf Sugar Palm | 5 | 4 | 3 | 4 at any OA | | |
| *Arenga tremula* | Dwarf Sugar Palm | 5 | 4 | 3 | 4 at any OA | | |
| *Bismarckia nobilis* | Bismarck Palm | 6 | 5 | 4 | ≤8 FT=6 | >8FT ≤ 18 FT=9 | >18 FT=12 |
| *Butia odorata (formerly B. capitata)* | Pindo Palm | 12 | 10 | 7 | ≤14 FT=6 | | >14 FT=9 |
| *Butiagrus nabonnandii* | Mule Palm | 15 | 12 | 9 | ≤15 FT=6 | | >15 FT=9 |
| *Carpentaria acuminata* | Carpentaria Palm | 6 | 5 | 4 | 6 at any OA | | |
| *Caryota mitis* | Clustering Fishtail Palm | 6 | 5 | 4 | 4 at any OA | | |
| *Chamaedorea cataractarum* | Cat Palm | 5 | 4 | 3 | 4 at any OA | | |
| *Chamaedorea erumpens* | Bamboo Palm | 5 | 4 | 3 | 4 at any OA | | |
| *Chamaedorea microspadix* | Hardy Bamboo Palm | 5 | 4 | 3 | 4 at any OA | | |
| *Chamaedorea seifrizii* | Reed Palm | 5 | 4 | 3 | 4 at any OA | | |
| *Chamaerops humilis* | European Fan Palm | 20 | 16 | 12 | 6 at any OA | | |
| *Chambeyronia macrocarpa* | Red Feather Palm | 6 | 5 | 4 | 4 at any OA | | |
| *Coccothrinax spp. (incl. C. alta, argentata, C. crinita, C. miraguama)* | Silver Palm | 8 | 6 | 5 | ≤12 FT=6 | | >12 FT=9 |
| *Cocos nucifera* | Coconut Palm | 6 | 5 | 4 | ≤20 FT=6 | | >20 FT=9 |
| *Copernicia alba* | Caranday Palm | 30 | 24 | 18 | ≤15 FT=6 | | >15 FT=9 |
| *Copernicia prunifera* | Carnauba Palm | 25 | 20 | 15 | 6 at any OA | | |
| *Dictyosperma album* | Princess Palm | 9 | 7 | 6 | 6 at any OA | | |
| *Dypsis cabadae* | Cabada Palm | 4 | 3 | 2 | 4 at any OA | | |

* Refer to Leaf Count Definition in the Grading Glossary
** Refer to Root Ball Measurement Definition in the Grading Glossary
*** Exempt from abrupt tapering grading factors

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| *Dypsis decaryii* | Triangle Palm | 10 | 7 | 5 | ≤15 FT=6 | | >15 FT=9 |
| *Dypsis lastelliana* | Teddy Bear Palm | 8 | 6 | 5 | 6 at any OA | | |
| *Dypsis lutescens* | Areca Palm | 6 | 5 | 4 | 4 at any OA | | |
| *Heterospathe elata* | Sagisi Palm | 6 | 5 | 4 | 6 at any OA | | |
| *Hyophorbe lagenicaulis**** | Bottle Palm | 4 | 3 | 2 | 6 at any OA | | |
| *Hyophorbe verschafeltii* | Spindle Palm | 4 | 3 | 2 | 6 at any OA | | |
| *Latania loddigesii* | Blue Latan Palm | 6 | 5 | 4 | 6 at any OA | | |
| *Latania lontaroides* | Red Latan Palm | 6 | 5 | 4 | 6 at any OA | | |
| *Leucothrinax morrisii* | Key Thatch Palm | 8 | 6 | 5 | 6 at any OA | | |
| *Livistona australis* | Australian Fan Palm | 10 | 8 | 6 | ≤15 FT=6 | | >15 FT=9 |
| *Livistona chinensis* | Chinese Fan Palm | 10 | 8 | 6 | ≤20 FT=6 | | >20 FT=9 |
| *Livistona decora (formerly L. decipiens)* | Ribbon Palm | 25 | 20 | 15 | ≤20 FT=6 | | >20 FT=9 |
| *Livistona nitida* | Carnavon Gorge | 20 | 16 | 12 | ≤20 FT=6 | | >20 FT=9 |
| *Livistona saribus* | Taraw Palm | 20 | 16 | 12 | ≤20 FT=6 | | >20 FT=9 |
| *Phoenix canariensis* | Canary Island Date Palm | 15 | 12 | 9 | ≤12 FT=6 | >12 FT ≤ 20 FT=9 | >20 FT=12 |
| *Phoenix dactylifera (Medjool)* | Date Palm | 29 | 23 | 17 | ≤26 FT=6 | >26 FT ≤ 39 FT=9 | >39 FT=12 |
| *Phoenix dactylifera (Zahidi)* | Date Palm | 29 | 23 | 17 | ≤26 FT=6 | >26 FT ≤ 39 FT=9 | >39 FT=12 |
| *Phoenix dactylifera (Deglet Noor)* | Date Palm | 25 | 20 | 15 | ≤26 FT=6 | >26 FT ≤ 39 FT=9 | >39 FT=12 |
| *Phoenix reclinata* | Senegal Date Palm | 15 | 12 | 9 | ≤20 FT=6 | >12 FT ≤ 20 FT=9 | >20 FT=9 |
| *Phoenix roebelenii* | Pygmy Date Palm | 25 | 20 | 15 | 6 at any OA | | |
| *Phoenix sylvestris* | Wild Date Palm | 40 | 32 | 24 | ≤15 FT=6 | >15 FT ≤ 25 FT=9 | >25 FT=12 |
| *Pseudophoenix sargentii* | Buccaneer Palm | 8 | 6 | 5 | 6 at any OA | | |
| *Ptychosperma elegans* | Solitaire Palm | 5 | 4 | 3 | 6 at any OA | | |
| *Ptychosperma macarthurii* | Macarthur Palm | 5 | 4 | 3 | 4 at any OA | | |
| *Rhapis excelsa* | Lady Palm | 7 | 6 | 4 | 4 at any OA | | |
| *Rhapis multifida* | Finger Palm | 5 | 4 | 3 | 4 at any OA | | |
| *Roystonea regia* | Royal Palm | 6 | 5 | 4 | ≤20 FT=6 | >20 FT ≤ 30FT=9 | >30 FT=12 |
| *Sabal sp.* | Cabbage Palm (Regenerated) | 4 | 3 | 2 | 3 at any OA | | |
| *Sabal sp.* | Cabbage Palm (Cropped) | 0 | 0 | 0 | 3 at any OA | | |
| *Syagrus romanzoffiana* | Queen Palm | 8 | 6 | 5 | ≤20 FT=6 | | >20 FT=9 |
| *Thrinax radiata* | Florida Thatch Palm | 8 | 6 | 5 | 6 at any OA | | |
| *Trachycarpus fortunei* | Windmill Palm | 12 | 10 | 7 | 6 at any OA | | |
| *Veitchia arecina (formerly V. montgomeryana)* | Montgomery Palm | 5 | 4 | 3 | ≤20 FT=9 | | >20 FT=12 |
| *Washingtonia robusta* | Mexican Fan Palm | 8 | 6 | 5 | ≤20 FT=6 | | >20 FT=9 |
| *Wodyetia bifurcata* | Foxtail Palm | 8 | 6 | 5 | ≤20 FT=6 | | >20 FT=9 |

* Refer to Leaf Count Definition in the Grading Glossary
** Refer to Root Ball Measurement Definition in the Grading Glossary
*** Exempt from abrupt tapering grading factors

## PALM GRADING STEPS

Following are the steps to complete the Palm Grading Form:

**Step 1.** Examine the palm using the list of eliminating factors on the Palm Grading Forms. If there are no eliminating factors, proceed to Step 2.

**Step 2.** Refer to Table 1 and note the minimum leaf count and root ball measurment for the species being graded.

**Step 3.** Examine the palm against the list of downgrading factors on the Palm Grading Forms.

## PALM GRADING FORM

(For sabal species, see sabal grading forms)

**Palm #** _____ **Species:**_____

**Step 1.** Eliminating factors are severe problems that decrease the palm's chance for survival in the new site. Any one of these factors eliminates the palm from Grades and Standards consideration. The palm is termed "Not Gradable," regardless of other attributes.

| | Answer 'YES' if true |
|---|---|
| a) Evidence of palm weevils or symptoms of lethal diseases such as Fusarium Wilt, Ganoderma butt rot, phytoplasma diseases, Thielaviopsis trunk rot, or Phytophthora bud rot. | a)_____ |
| b) Wood boring insect damage. | b)_____ |
| c) Exposure of or damage to vascular tissue.* | c)_____ |
| d) Abrupt tapering within the top foot of the woody trunk reducing the diameter by more than 20%. | d)_____ |
| e) Extreme succulence. | e)_____ |
| f) Naturally occurring vertical fissures exceeding one-inch in depth. | f)_____ |
| g) Pseudobark damage totaling more than 20 square inches.* | g)_____ |
| h) Failure to meet the minimum requirements for root ball measurement or Florida No. 2 leaf count in Table 1. | h)_____ |

**One or more 'YES' responses to the eliminating factors listed above renders the palm not gradable.**

**Step 2.** Initial grade established by Table 1: _____

**Step 3.** Downgrading Factors

| | Answer 'YES' if true |
|---|---|
| a) Pseudobark damage between 5 and 10 square inches. Enter one 'YES' for each occurrence.* | a)_____ _____ |
| b) Pseudobark damage between 10 and 20 square inches. This is in addition to the previous pseudobark damage downgrade.* | b)_____ |
| c) Abrupt tapering within the top foot of woody trunk reducing the diameter by 10% to 15%. | c)_____ |
| d) Abrupt tapering within the top foot of woody trunk reducing the diameter by 16% to 20%. This is in addition to the previous abrupt tapering downgrade. | d)_____ |

### GRADES

**Florida Fancy:** A palm with no eliminating or downgrading factors, meeting the requirements shown in Table 1 with 100% excellent leaves. One 'YES' response to the downgrading factors listed above renders the palm a Florida No. 1.

**Florida No. 1:** A palm with no eliminating factors, meeting the requirements shown in Table 1. One 'YES' response to the downgrading factors listed above renders the palm a Florida No. 2.

**Florida No. 2:** A palm with no eliminating factors, meeting the requirements shown in Table 1. One 'YES' response to the downgrading factors listed above renders the palm not gradable.

* Excluding pup scars in clonally produced palms, pesticide injection sites and naturally occurring vertical fissures less than one-inch in depth.

**Final Grade:** _____

## PALM - SABAL SPECIES GRADING FORM
## (Regenerated Sabal)

**Palm #** _____ **Species:**_____

**Step 1.** Eliminating factors are severe problems that decrease the palm's chance for survival in the new site. Any one of these factors eliminates the palm from Grades and Standards consideration. The palm is termed "Not Gradable," regardless of other attributes.

| | Answer 'YES' if true |
|---|---|
| a) Evidence of palm weevils or symptoms of lethal diseases such as Fusarium wilt, phytoplasma diseases, Ganoderma butt rot, Thielaviopsis trunk rot or Phytophtora bud rot. | a)_____ |
| b) Wood boring insect damage. | b)_____ |
| c) Exposure of or damage to vascular tissue. | c)_____ |
| d) Abrupt tapering within the top foot of the woody trunk reducing the diameter by more than 15%. | d)_____ |
| e) Root ball vertical surface has less than 50% covered by visible roots, excluding top six inches. | e)_____ |
| f) Extreme succulence. | f)_____ |
| g) Naturally occurring vertical fissures exceeding one inch in depth. | g)_____ |
| h) Pseudobark damage totaling more than 20 square inches.* | h)_____ |
| i) Failure to meet the minimum requirements for root ball measurement or Florida No. 2 leaf count in Table 1. | i)_____ |

**One or more 'YES' responses to the eliminating factors listed above, renders the palm not gradable.**

**Step 2.** Initial grade established by Table 1: _____

**Step 3.** Downgrading Factors

| | Answer 'YES' if true |
|---|---|
| a) Pseudobark damage between 5 and 10 square inches. Enter one 'YES' for each occurrence.* | a)_____ _____ |
| b) Pseudobark damage between 10 and 20 square inches. This is in addition to the previous pseudobark damage downgrade.* | b)_____ |
| c) Abrupt tapering within the top foot of the woody trunk between 5% and 10%. | c)_____ |
| d) Abrupt tapering within the top foot of the woody trunk between 11% and 15%. This is in addition to the previous abrupt tapering downgrade. | d)_____ |

### GRADES

**Florida Fancy:** A palm with no eliminating or downgrading factors, meeting the requirements shown in Table 1 with 100% excellent leaves. One 'YES' response to the downgrading factors listed above renders the palm a Florida No. 1.

**Florida No. 1:** A palm with no eliminating factors, meeting the requirements shown in Table 1. One 'YES' response to the downgrading factors listed above renders the palm a Florida No. 2.

**Florida No. 2:** A palm with no eliminating factors, meeting the requirements shown in Table 1. One 'YES' response to the downgrading factors listed above renders the palm not gradable.

* excluding naturally occurringvertical fissures less than one-inch in depth and pesticide injection sites

**Final Grade:** _____

## PALM - SABAL SPECIES GRADING FORM
## (Cropped Sabal)

**Palm #** _____ **Species:**_____

**Step 1.** Eliminating factors are severe problems that decrease the palm's chance for survival in the new site. Any one of these factors eliminates the palm from Grades and Standards consideration. The palm is termed "Not Gradable," regardless of other attributes.

| | Answer 'YES' if true |
|---|---|
| a) Evidence of palm weevils or symptoms of lethal diseases such as Fusarium wilt, phytoplasma diseases, Ganoderma butt rot, Thielaviopsis trunk rot or Phytophtora bud rot. | a)_____ |
| b) Wood boring insect damage. | b)_____ |
| c) Exposure of or damage to vascular tissue. | c)_____ |
| d) Abrupt tapering within the top foot of the woody trunk reducing the diameter by more than 15%. | d)_____ |
| e) Naturally occurring vertical fissures exceeding one inch in depth. | e)_____ |
| f) Extreme succulence. | f)_____ |
| g) Pseudobark damage totaling more than 20 square inches.* | g)_____ |
| h) Failure to meet the minimum requirements for root ball measurement in Table 1. | h)_____ |

**One or more 'YES' responses to the eliminating factors listed above, renders the palm not gradable.**

**Step 2.** Initial grade established by Table 1: _____

**Step 3.** Downgrading Factors

| | Answer 'YES' if true |
|---|---|
| a) Pseudobark damage between 5 and 10 square inches. Enter one 'YES' for each occurrence.* | a)_____ _____ |
| b) Pseudobark damage between 10 and 20 square inches. This is in addition to the previous pseudobark damage downgrade.* | b)_____ |
| c) Abrupt tapering within the top foot of the woody trunk between 5% and 10%. | c)_____ |
| d) Abrupt tapering within the top foot of the woody trunk between 11% and 15%. This is in addition to the previous abrupt tapering downgrade. | d)_____ |

### GRADES

**Florida Fancy:** A palm with no eliminating or downgrading factors, meeting the requirements shown in Table 1. One 'YES' response to the downgrading factors listed above renders the palm a Florida No. 1.

**Florida No. 1:** A palm with no eliminating factors, meeting the requirements shown in Table 1. One 'YES' response to the downgrading factors listed above renders the palm a Florida No. 2.

**Florida No. 2:** A palm with no eliminating factors, meeting the requirements shown in Table 1. One 'YES' response to the downgrading factors listed above renders the palm not gradable.

**Final Grade:** _____

* excluding naturally occurring vertical fissures less than one-inch in depth and pesticide injection sites

## PROCESSES FOR SPECIFYING PALMS

Florida Grades and Standards for Palms is constructed to measure only the health of palms at the time of delivery. Design professionals seeking specific palm form and dimensional characteristics must include these requirements in the contract documents, along with details and other installation, establishment and warranty requirements.
The terms defined in the Glossary of Palm Grading and Palm Specifying are used in the Florida Grades and Standards for Palms as the prescribed language for specifying palms. Some specifications to consider are listed below:

**Trunk Measurements**

- Caliper at specified heights
- Clear Trunk
- Clear Wood
- Terminus Height

**Trunk Characteristics**

- Curved Trunk or straight trunk or multi trunk
- Type of Leaf Base Trimming
- Pseudobark Condition

**Leaves**

- Cropped Palm
- Canopy Spread
- Leaf Tipping (after grading)
- Leaf counts of those species not listed in Table 1

**Other**

- Overall Height
- Rootball measurements of those species not listed in Table 1
- Certifications
- Vertical clearance

## GLOSSARY OF PALM SPECIFYING TERMINOLOGY

**Abrupt constriction:** A point along the trunk having a reduction in diameter greater than 10% than the diameter within 1 foot above and/or below, typically indicating a period of stress occurred in the past.

**Boot:** The leaf base or enlarged basal portion of the petiole remaining affixed to the trunk after the leaf has died and been broken or cut off.

**Booted:** Used to specify palms with leaf bases still attached to the trunk.

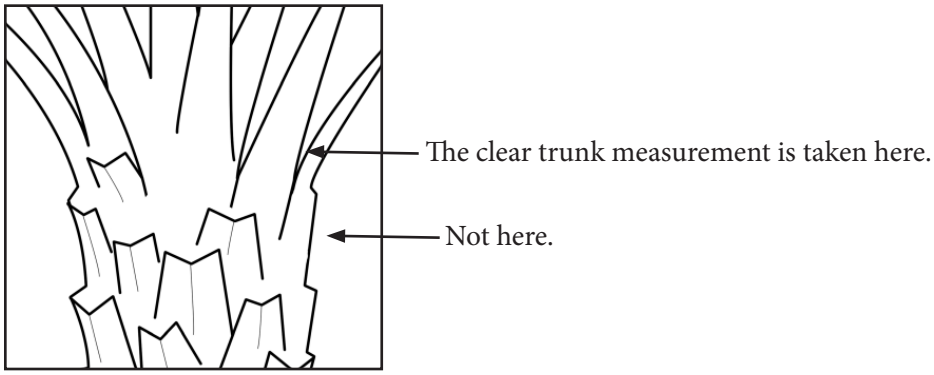
**Caliper:** The diameter of a palm's trunk. The height that this diameter is measured must be specified.

**Canopy spread:** A measurement taken from leaf tip to leaf tip, in their natural state, at the widest point.

**Character palms, Curved palms:** Used to specify unusual trunk shapes.

**Clean trunk:** See "Leaf base trimming (Clean cut photo)."

**Clear trunk:** A measurement from the top of the root ball to the point where the lowest untrimmed leaf's petiole diverges from the trunk. The remaining leaf counts must meet the minimum requirements for the chosen grade - See leaf counts in Table 1 for FL Fancy, FL No. 1 and FL No. 2. Reducing the leaf count to achieve more clear trunk can result in a lower grade.




**Clear wood, Gray Wood:** A measurement from the top of rootball to the highest point on the trunk free of persistent leaf bases. On palms with a crownshaft, the measurement is from the top of rootball to the base of the crownshaft. Palms with very persistent leaf bases may not have clear wood.

**Cropped palms:** Palms with all leaves removed before transplanting. Typically performed on field harvested Sabal species. Previously known as Hurricane Cut.

**Crownshaft:** A conspicuous neck-like structure formed by tubular leaf bases on some pinnate-leaved palms.

**Debooted:** See "Clean trunk" definition.

**Frond:** A common term used to describe a palm leaf.

**Gray wood:** See "Clear wood" definition.

**Hurricane cut:** See "Cropped palms" definition.

**Leaf base:** The basal portion of a leaf that is attached to the trunk.

## GLOSSARY OF SPECIFYING TERMINOLOGY

**Leaf base trimming:** A process of cutting leaf bases to achieve a particular appearance, typically performed by the grower. There are several types of trimming cuts that may be specified including classic, clean, diamond and shelf.


Classic cut


Clean cut


Diamond cut


Shelf cut

**Leaf length:** The distance along the petiole from the point where the petiole diverges from the trunk to the leaf's tip.

**Main trunk:** For clustering palms and single trunk palms intentionally grown with more than one trunk the tallest trunk in the cluster is considered the main trunk.

**Multi-trunk:** A term used to specify multiple single trunked palms grown together.

**Overall height:** The highest point in the canopy measured from the top of rootball to the natural position of the last fully emergered (all leaflets are fully expanded) leaf.

**Regenerated palms:** Field-grown palms, especially Sabal palms, that have some type of containment placed around the root ball after harvesting and cropping, then are maintained until several new leaves and a substantial number of new roots have been produced. This takes several months or more and can improve transplant success.

**Slick trunk:** Trunk with leaf bases mechanically removed often causing damage to the pseudobark and exposing vascular tissue. This practice is not recommended.

**Sloughing:** The natural degradation and dropping of leaf bases. This is not detrimental to the palm's health.

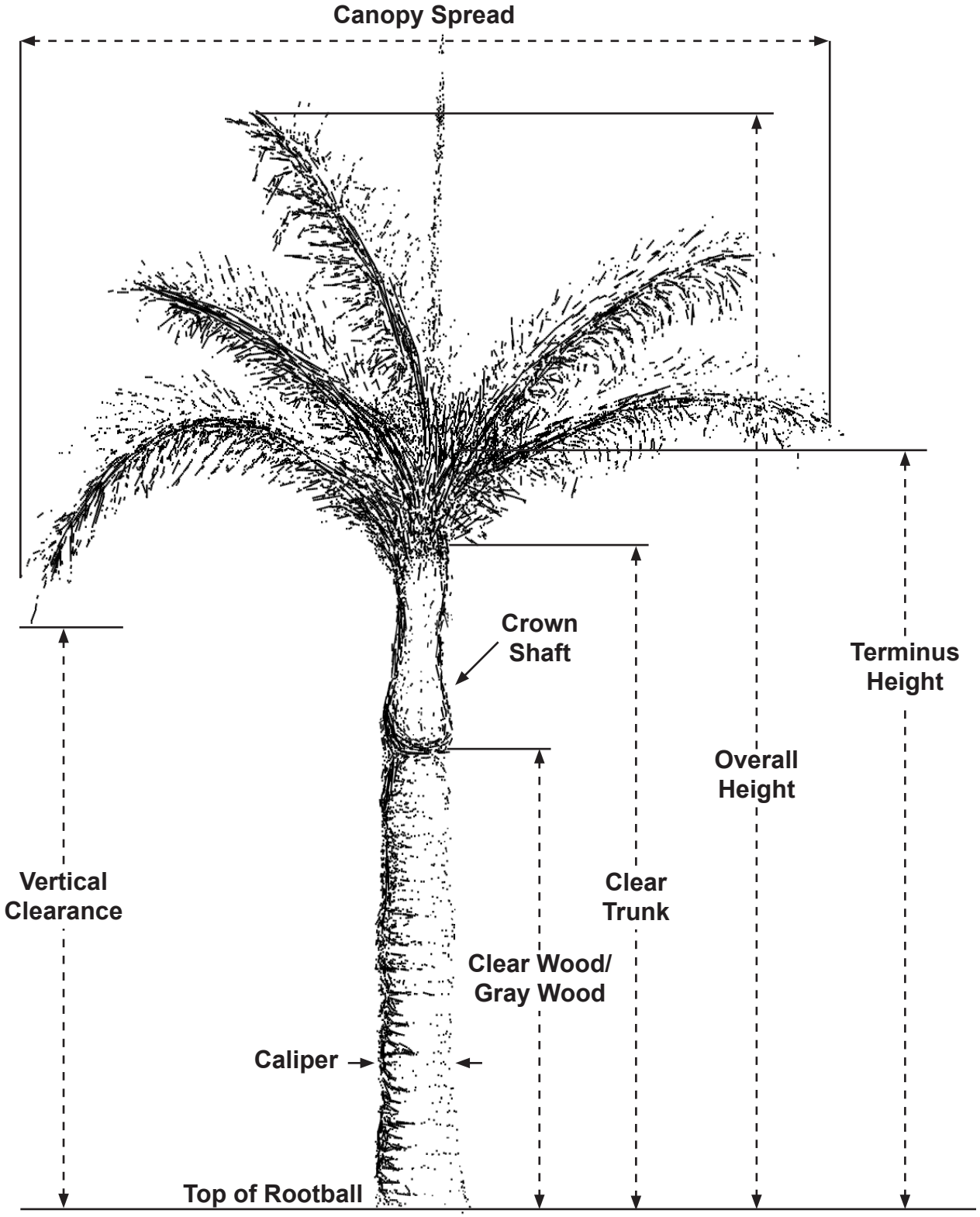
**Suckers:** Small shoots emerging from the base of main trunks in clustering palms.

**Terminus height:** Measurement from the top of rootball to the point of emergence of the spear leaf. This is a practical measurment method for cropped palms.

**Vertical clearance:** A measurement from the top of rootball to the lowest leaf. Pruning may be required to achieve clearance for pedestians, vehicles, signs, etc. If minimum leaf counts are maintained, grading is not affected.

## PALM SPECIFYING TERMS ILLUSTRATION

Specifications regarding form and dimensional characteristics (other than grading factors) are the responsibility of design professionals. The following illustrates terms that provide a common language for describing parts and measurements of palms.



## TRANSPLANTING PALMS - SABAL SPECIES

Sabal palms (Sabal palmetto) are the most widely planted palms in the southeastern United States. Virtually all are mature specimens harvested from natural stands because their slow growth rate makes nursery production uneconomical. Recognizing that sabal palms are harvested from the wild, they have been separated from the other palms in this document and are addressed in this section. **Note that some of the conditions applied to sabal palms as eliminating factors in previous editions are modified in this edition.**

Sabal palms grow naturally in many diverse habitats including swamps, pine flatlands and fire climax ecosystems, and are adaptable to a wide range of landscape environments. They are recognized as a renewable but finite natural resource. In the past, many sabal palms that were otherwise healthy, but had certain downgrading factors such as superficial fire damage, were not collected because they were considered not gradable. This document no longer considers superficial fire damage or superficial methods to remove charred areas as eliminating factors.

It is also important to consider the methods used to harvest sabal palms. Sabal palms are usually harvested using heavy equipment which may cause trunk damage. However, if this damage occurs in pseudobark trunk tissue, it is unlikely to be an entry point for insects and disease and does not compromise the structural integrity of the palm.

Historically, survival rates for transplanted sabal palms were often low. In sabal palms no cut roots survive; however, roots are continually produced from the root initiation zone. In the late 1980s, studies showed that the removal of all leaves (cropping) increased the survival rate of transplanted sabal palms by 30%. Since that time, the standard procedure for transplanting collected sabal palms is to remove all leaves during harvesting operations. Postharvest care greatly affects the survivability of all palms. If the root ball dessicates, newly formed adventitious roots may die.

Inadequate watering may lead to decline and eventual death of the palm. It may also predispose the palm to insect infestation and disease.

Excessive removal of leaf bases is another factor that may affect survivability of transplanted sabal palms and should be avoided. Removal of leaf bases may lead to the desiccation of the palm. This may also increase the likelihood of the introduction of trunk rotting fungi like Thielaviopsis. Thielaviopsis has become one of the major factors in the death of transplanted sabal palms, resulting in losses of up to 90%. In addition, excessive removal of leaf bases may also predispose the palm to insect infestations such as palm weevils.

Recent postharvest production methods include the concept of regeneration. Regeneration is the establishment of a new root system and leaves. This is accomplished by wrapping the root ball of a freshly harvested sabal palm with multiple layers of plastic sufficient to contain the emerging roots, or placing the freshly harvested palm into a container. The palm is held for a sufficient amount of time to establish a new root system and leaves.

## TRANSPLANTING PALMS - SABAL SPECIES

Regenerated palms

Regenerated root ball

## REFERENCES


**Palm Transplanting**

Transplanting Palms in the Landscape http://edis.ifas.ufl.edu/ep001

**Nutritional and Physiological Problems of Palms**

Nutrient Deficiencies of Landscape and Field-Grown Palms in Florida http://edis.ifas.ufl.edu/ep273
Physiological Disorders of Landscape Palms http://edis.ifas.ufl.edu/ep263

**Palm Diseases**

Bud Rot of Palm http://edis.ifas.ufl.edu/pp144
Fusarium Wilt of Canary Island Date Palm http://edis.ifas.ufl.edu/pp139
Fusarium Wilt of Queen Palm and Mexican Fan Palm http://edis.ifas.ufl.edu/pp278
Ganoderma Butt Rot of Palms http://edis.ifas.ufl.edu/pp100
Graphiola Leaf Spot (False Smut) of Palm http://edis.ifas.ufl.edu/pp140
Lethal Yellowing (LY) of Palm http://edis.ifas.ufl.edu/pp146
Texas Phoenix Palm Decline http://edis.ifas.ufl.edu/pp163
Thielaviopsis Trunk Rot of Palm http://edis.ifas.ufl.edu/pp143

**Insect Pests of Palms**

Palmetto weevil, *Rhynchophorus cruentatus* Fabricius (Insecta: Coleoptera: Curculionidae)
http://edis.ifas.ufl.edu/in139
Royal Palm Bug, *Xylastodoris luteolus* Barber (Insecta: Hemiptera: Thaumastocoridae)
http://edis.ifas.ufl.edu/in254
Silky Cane Weevil, *Metamasius hemipterus sericeus* (Olivier) (Insecta: Coleoptera: Curculionidae)
http://edis.ifas.ufl.edu/in210

# SHRUBS

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## SHRUBS

# GRADING SHRUBS

## GENERAL DOWNGRADING FACTORS

The versatility of shrubs lends them to be a valuable asset in the landscape. They provide ornamental characteristics such as form, color, texture, height and spread. The shrubs quality is based on the health and vigor of the plant, as well as its shape for its intended Type. Because of this versatility, grading is given a broad scope. For this document there are seven grading Types: Broad-Spreading, Semi-Broad Spreading, Spreading, Globose, Upright Spreading, Upright, and Columnar.

The following is a list of defects which offers a quick reference to plant grade criteria. All are to be avoided, if possible.

Some of these factors may make a plant ineligible for Florida Fancy, Florida No. 1 or Florida No. 2 grades. If a plant has one of these faults, it does not necessarily mean that the plant would be prohibited from being placed in a higher grade later as many of them can be corrected with good cultural maintenance.

Any plant shall be placed in the next lowest grade if one or more of these downgrading criteria are met.

It should be noted that due to the size, shape and age of the plant, plants which may not meet the Type designation at the time of grading may be eligible after the next growing season.

1. **Lack of Health and Vigor or Excessive Succulence.**

2. **Canes or Trunk(s) and Branches:**
   a. Weak or poorly formed.
   b . Excessive scarring, scars not healing properly, or poor pruning cuts showing excessive protrusion.
   c. Poor graft unions not healing properly or rough cut.
   d. Branches poorly distributed forming an undesirable plant.
   e. Severe creasing, cracks, cambium peeling, cavities, holes or dead wood.
   f. Cold damage.

3. **Foliage:**
   a. Leaves of improper shape, size, texture and color.
   b. Excessive chlorosis, pests or disease evidence, or mechanical injury.

**4. Root System:**
   a. Container-grown stock.
      (1) Not established in container.
      (2) Excessively rootbound.
      (3) Large roots growing out of container.
      (4) Noxious weeds in container.
   b. Balled or balled and burlapped stock (B&B)
      (1) Loosely established in ball.
      (2) Ball soft or loosely tied.
      (3) Ball too small or shallow.
      (4) Noxious weeds growing around trunk.
   c. Bare-rootstock.
      (1) Roots lacking in health or vigor.
      (2) Few main lateral roots, poorly distributed, or too few feeder roots.
      (3) Ragged digging cuts, broken or split roots.
      (4) Roots damaged by exposure to light, air, temperature or too much water.

## MINIMUM AVERAGE SPREAD FOR CONTAINER AND B&B PLANTS

| | Florida Fancy | Florida No. 1 | Florida No. 2 |
|---|---|---|---|
| **Type BS - Broad Spreading** | 3 x total height | 2¾ x total height | 2½ x total height |
| **Type SBS - Semi-Broad Spreading** | 2¼ x total height | 2 x total height | 1¾ x total height |
| **Type S - Spreading** | 1½ x total height | Equal total height | ⅔ of total height |
| **Type G - Globose** | Equal total height | ⅔ of total height | ½ of total height |
| **Type US - Upright Spreading** | ¾ of total height | ½ of total height | ⅓ of total height |
| **Type U - Upright** | ½ of total height | ⅓ of total height | ¼ of total height |
| **Type C - Columnar** | ⅓ of total height | ¼ of total height | ⅕ of total height |

## GENERAL GRADE STANDARDS FOR SHRUBS

**Florida Fancy**

An exceptionally healthy and vigorous plant which is very well shaped, heavily branched and densely foliated (subject to natural growth of the variety).

1. Canes or Trunk(s) and Branches:
   a. Well formed and sturdy.
   b. Branching plentiful and uniformly distributed to form a well-balanced plant.
   c. Scars free of rot and do not exceed in greatest dimension ¼ the diameter of the wood beneath unless completely healed (except pruning scars).
   d. Pruning scars clean cut leaving little or no protrusion from the trunk or branch.
   e. Graft union completely healed.
   f. No mechanical or pest damage.
   g. No extreme succulence.

2. Foliage:
   a. Densely supplied with healthy, vigorous leaves of normal size, shape, color and texture (except shrubs moved bare-root or deciduous shrubs when dormant).
   b. No holes, cavities or depressed areas caused by broken or dead branches or insufficient foliage.
   c. No chlorosis.
   d. Pest or mechanical damage barely perceptible with no more than 5% of total foliage affected.
   e. No frost or cold damage discernible.

3. Root System:
   a. Container-grown stock.
      (1) Sturdily established in container.
      (2) Not excessively rootbound except plants deliberately grown rootbound to produce a dwarf plant.
      (3) No large roots growing out of container.
      (4) No noxious weeds in container.
   b. Balled or balled and burlapped stock (B&B).
      (1) Sturdily established in ball that has been tightly wrapped and securely tied with twine or wire, or pinned.
      (2) Plants must have been previously root pruned and/or contain sufficient roots for continued growth without resulting shock.
      (3) Minimum ball size: see chart, page 7.
   c. Bare-rootstock.
      (1) Roots healthy and vigorous, characterized by good color and succulence.
      (2) Well supplied with main lateral roots, uniformly distributed around crown or taproot.

(3) Well supplied throughout with fibrous (feeder) roots.
(4) Insect lesions and other mechanical injury well calloused and not to exceed in greatest dimension ¼ the diameter of the root beneath unless completely healed.
(5) Ragged digging cuts pruned clean.
(6) Root systems shall be kept moist, out of direct sunlight and drying breezes at all times.
(7) Root system shall have a spread and depth equal to minimum ball size when rootpruned prior to digging, or ⅓ greater than minimum ball size if not root pruned.

**Florida No.1**

A healthy, vigorous plant which is well-shaped, well-branched and well-foliated (subject to natural growth of the variety).

**1. Canes or Trunk(s) and Branches:**

a. Well formed and sturdy.
b. Good branching, uniformly distributed to form a well-balanced plant.
c. Scars free of rot and do not exceed in greatest dimension the diameter of the wood beneath unless clean and healed 75% or better (except pruning scars).
d. Pruning scars clean cut leaving little or no protrusion from trunk or branch.
e. Graft union healed 75% or better.
f. No extreme succulence.

**2. Foliage:**

a. Well supplied with leaves of normal size, shape, color and texture (except shrubs moved bare-root or deciduous shrubs when dormant).
b. No holes, cavities or depressed areas caused by broken or dead foliage.
c. Maximum chlorosis very slight and not more than 10% of total foliage.
d. Pest or mechanical damage confined to no more than 10% of total foliage.
e. Frost or cold damage confined to no more than a slight tip burn on the leaves covering 10% or less of the surface area.

**3. Root System:**

a. Container-grown stock.
(1) Sturdily established in container.
(2) Not excessively rootbound except plants deliberately grown rootbound to produce a dwarf plant.
(3) No large roots growing out of container.
(4) No noxious weeds
b. Balled or balled and burlapped stock (B&B).
(1) Sturdily established in ball that has been tightly wrapped and securely tied with twine or wire, or pinned.
(2) Plants must have been previously root pruned and/or contain sufficient roots for continued growth without resulting shock.
(3) Minimum ball size: see chart, page 7.
(4) No noxious weeds
c. Bare-rootstock.
(1) Roots healthy and vigorous, characterized by very good color and succulence.
(2) Well supplied with main lateral roots, uniformly distributed around crown or taproot.
(3) Well supplied throughout with fibrous (feeder) roots.
(4) Insect lesions and other mechanical injury well calloused and not to exceed in greatest dimension ¼ the diameter of the root beneath unless completely healed.
(5) Ragged digging cuts pruned clean.
(6) Root systems shall be kept moist, out of direct sunlight and drying breezes at all times.
(7) Root systems shall have a spread and depth equal to minimum ball size when root pruned prior to digging, or 1/3 greater than minimum ball size if not root-pruned.

**Florida No. 2**

A healthy, vigorous plant which is fairly well shaped, with fair branching and fair foliage (subject to natural growth of the variety).

**1. Canes or Trunks(s) and Branches:**

a. Fairly well formed and sturdy.
b. Scars free of rot and do not exceed in greatest dimension twice the diameter of the wood beneath unless clean and healed 75% or better (except pruning scars).
c. Pruning scars clean cut.
d. Graft union healed 50% or better.

**2. Foliage:**

a. Fairly well supplied with leaves of good size, shape, color and texture (except shrubs moved bare-root or deciduous shrubs when dormant).
b. Maximum chlorosis 25% of total foliage.
c. Pest or mechanical injury shall not exceed approximately 25% of individual leaves nor

d. Frost or cold damage confined to foliage on branch tips, no more than 20% of length of branches, nor affecting more than 25% of the surface area.

**3. Root System:**

a. Container-grown stock.
   (1) Sturdily established in container.
   (2) Not excessively rootbound except plants deliberately grown rootbound to produce a dwarf plant.
   (3) No large roots growing out of container.
   (4) No noxious weeds

b. Balled or balled and burlapped stock (B & B).
   (1) Sturdily established in ball that has been tightly wrapped and securely tied with twine or wire, or pinned.
   (2) Plants must have been previously root pruned and/or contain sufficient roots for continued growth without resulting shock.
   (3) Minimum ball size: see chart, page 7.
   (4) No noxious weeds

c. Bare-rootstock.
   (1) Roots healthy and vigorous, characterized by very good color and succulence.
   (2) Well supplied with main lateral roots, uniformly distributed around crown or taproot.
   (3) Well supplied throughout with fibrous (feeder) roots.
   (4) Insect lesions and other mechanical injury well calloused and not to exceed in greatest dimension ¼ the diameter of the root beneath unless completely healed.
   (5) Ragged digging cuts pruned clean.
   (6) Root systems shall be kept moist, out of direct sunlight and drying breezes at all times.
   (7) Root system shall have a spread and depth equal to minimum ball size when root pruned prior to digging, or ⅓ greater than minimum ball size if not root-pruned.

## MINIMUM BALL SIZES

### Minimum Ball Diameter

| TYPES BS, SBS & S | | TYPES G & US | | TYPES U & C | |
|---|---|---|---|---|---|
| SPREAD | MINIMUM BALL DIAMETER | SPREAD | MINIMUM BALL DIAMETER | SPREAD | MINIMUM BALL DIAMETER |
| 1 - 1½’ | 9” | 12 - 15” | 9” | 1½ - 2’ | 11” |
| 1½ - 2’ | 11” | 15 - 18” | 10” | 2 - 3’ | 12” |
| 2 - 2½’ | 13” | 18 - 24” | 11” | 3 - 4’ | 13” |
| 2½ - 3’ | 15” | 2 - 2½’ | 12” | 4 - 5’ | 14” |
| 3 - 3½’ | 16” | 2½ - 3’ | 13” | 5 - 6’ | 16” |
| 3½ - 4’ | 18” | 3 - 4’ | 15” | 6 - 7’ | 18” |
| 4 - 5’ | 21” | 4 - 5’ | 17” | 7 - 8’ | 20” |
| 5 - 6’ | 24” | 5 - 6’ | 19” | 8 - 9’ | 22” |
| | | 6 - 7’ | 21” | 9 - 10’ | 24” |
| | | 7 - 8’ | 24” | | |

Larger sizes increase proportionately.

### Minimum Ball Depth

Balls with diameter less than 20” — Depth not less than 75% of ball diameter.
Balls with diameters of 20” to 30” — Depth not less than 66 % of ball diameter.
Balls with diameters of 30” to 48” — Depth not less than 60% of ball diameter.

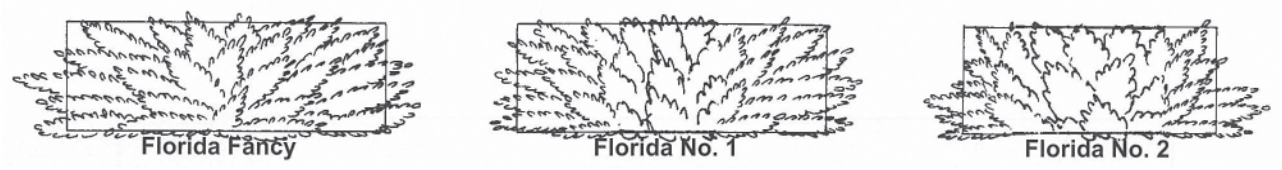
Percentage of depth of larger balls will scale down proportionately.

TOP

## TYPE BS — BROAD SPREADING

### MINIMUM AVERAGE SPREAD

| TOTAL HEIGHT | FLORIDA FANCY 3 x total height | FLORIDA NO. 1 2¾ total height | FLORIDA NO. 2 2½ total height | APPROX. CONTAINER SIZE |
|---|---|---|---|---|
| 3” | 9” | 8” | 7” | 1 GAL. |
| 5” | 15” | 14” | 12” | 2 GAL. |
| 7” | 21” | 19” | 18” | 3 GAL. |
| 9” | 27” | 25” | 22” | 4 GAL. |
| 12” | 36” | 33” | 30” | 7 GAL. |
| 15” | 45” | 41” | 37” | 10 GAL. |
| 18” + | 3 x total height | 2¾ x total height | 2½ x total height | 15 GAL. + |



TOP

## TYPE BS — BROAD SPREADING

Florida Fancy: emerald blanket natal-plum

Florida Fancy: dwarf or compact shore juniper

Florida No. 1: emerald blanket natal-plum

Florida No. 1: dwarf or compact shore juniper

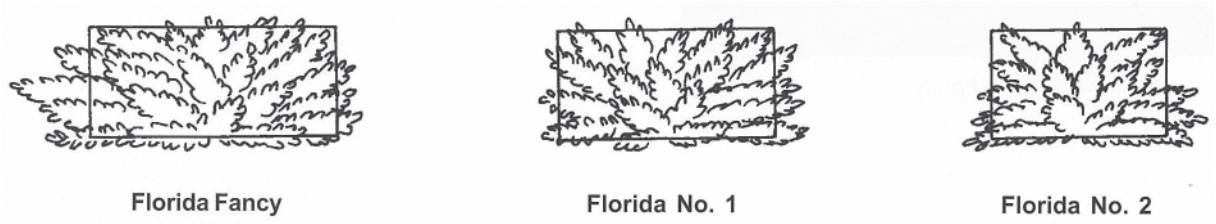
Florida No. 2: emerald blanket natal-plum

Florida No. 2: dwarf or compact shore juniper

## TYPE SBS — SEMI-BROAD SPREADING

### MINIMUM AVERAGE SPREAD

| TOTAL HEIGHT | FLORIDA FANCY 2¼ x total height | FLORIDA NO. 1 2 x total height | FLORIDA NO. 2 1¾ total height | APPROX. CONTAINER SIZE |
|---|---|---|---|---|
| 3” | 7” | 6” | 5” | 1 GAL. |
| 5” | 11” | 10” | 9” | 2 GAL. |
| 7” | 16” | 14” | 12” | 3 GAL. |
| 9” | 20” | 18” | 16” | 4 GAL. |
| 12” | 27” | 24” | 21” | 7 GAL. |
| 15” | 34” | 30” | 26” | 10 GAL. |
| 18” + | 2¼ x total height | 2 x total height | 1¾ x total height | 15 GAL. + |



TOP

## TYPE SBS — SEMI-BROAD SPREADING
### Florida Fancy Examples

Mexican-heather

nana holly, dwarf yaupon

Nick's compact juniper

dwarf trailing lantana

## TYPE SBS — SEMI-BROAD SPREADING
## Florida No. 1 Examples

Mexican-heather

nana holly, dwarf yaupon

Nick's compact juniper

dwarf trailing lantana

## TYPE SBS — SEMI-BROAD SPREADING
## Florida No. 2 Examples

Mexican-heather

nana holly, dwarf yaupon

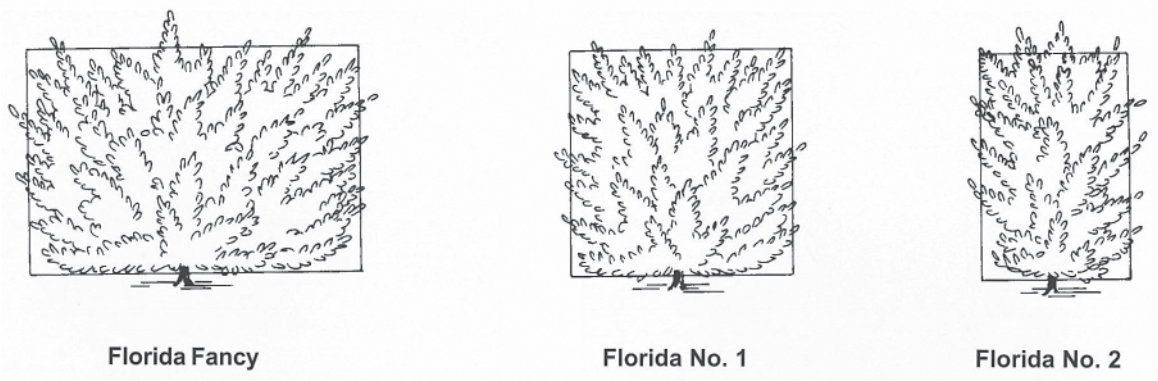
Nick's compact juniper

dwarf trailing lantana

## TYPE S - SPREADING

### MINIMUM AVERAGE SPREAD

| TOTAL HEIGHT | FLORIDA FANCY 1½ x total height | FLORIDA NO. 1 Equal total height | FLORIDA NO. 2 ⅔ of total height | APPROX. CONTAINER SIZE |
|---|---|---|---|---|
| 6” | 9” | 4” | 3” | 1 GAL. |
| 9” | 13” | 9” | 6” | 1-2 GAL. |
| 12” | 18” | 12” | 8” | 2-3 GAL. |
| 15” | 22” | 15” | 10” | 3 GAL. |
| 18” | 27” | 18” | 12” | 3-4 GAL. |
| 21 “ | 31 “ | 21 “ | 14” | 4 GAL. |
| 24” | 36” | 24” | 16” | 5-7 GAL. |
| 30” | 45” | 30” | 20” | 7-10 GAL. |
| 36” + | 1½ x total height | Equal total height | ⅔ of toal height | 15 GAL. |



## TYPE S — SPREADING
## Florida Fancy Examples

bush allamanda

crown-of-thorns

plumbago

Indian-hawthorn

## TYPE S — SPREADING
## Florida No. 1 Examples

bush allamanda

crown-of-thorns

plumbago

Indian-hawthorn

TOP

## TYPE S — SPREADING
## Florida No. 2 Examples

bush allamanda

crown-of-thorns

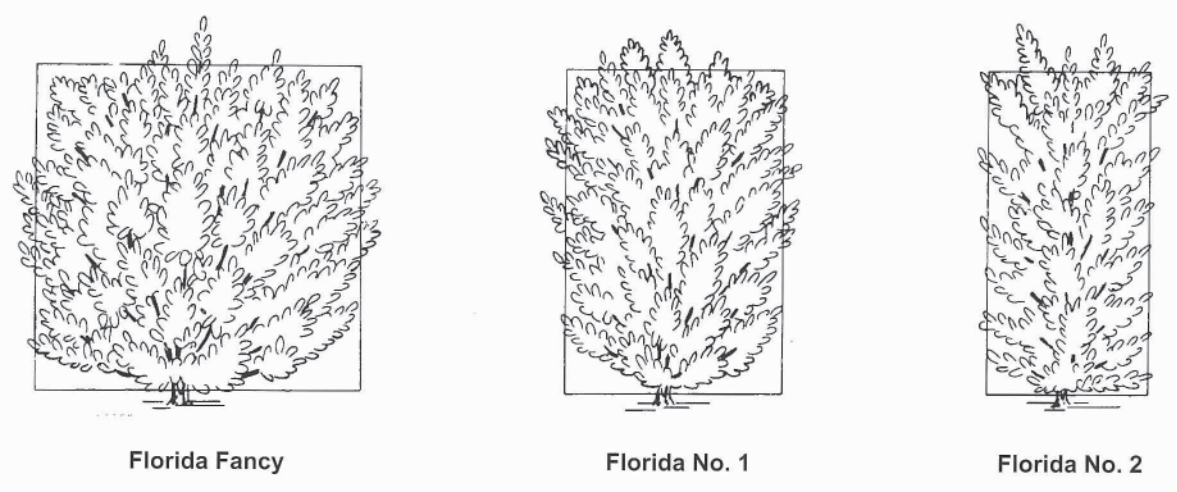
plumbago

Indian-hawthorn

## TYPE G — GLOBOSE

### MINIMUM AVERAGE SPREAD

| TOTAL HEIGHT | FLORIDA FANCY Equal total height | FLORIDA NO. 1 ⅔ of total height | FLORIDA NO. 2 ½ of total height | APPROX. CONTAINER SIZE |
|---|---|---|---|---|
| 6” | 6” | 4” | 3” | 1 GAL. |
| 9” | 9” | 9” | 4” | 1-2 GAL. |
| 12” | 12” | 8” | 6” | 2-3 GAL. |
| 15” | 15” | 10” | 7” | 3 GAL. |
| 18” | 18” | 12” | 9” | 3 GAL. |
| 21” | 21” | 14” | 10” | 3-4 GAL. |
| 24” | 24” | 16” | 12” | 3-7 GAL. |
| 30” | 30” | 20” | 15” | 4-7 GAL. |
| 36”+ | Equal total height | ⅔ of total height | ½ of total height | 5-15 GAL. + |



TOP

## TYPE G — GLOBOSE
### Florida Fancy Examples

pineapple-guava

thryallis or shower-of-gold

dwarf Chinese holly

variegated pittosporum

## TYPE G — GLOBOSE
## Florida No. 1 Examples

pineapple-guava

thryallis or shower-of-gold

dwarf Chinese holly

variegated pittosporum

TOP

## TYPE G — GLOBOSE
## Florida No. 2 Examples

pineapple-guava

thryallis or shower-of-gold

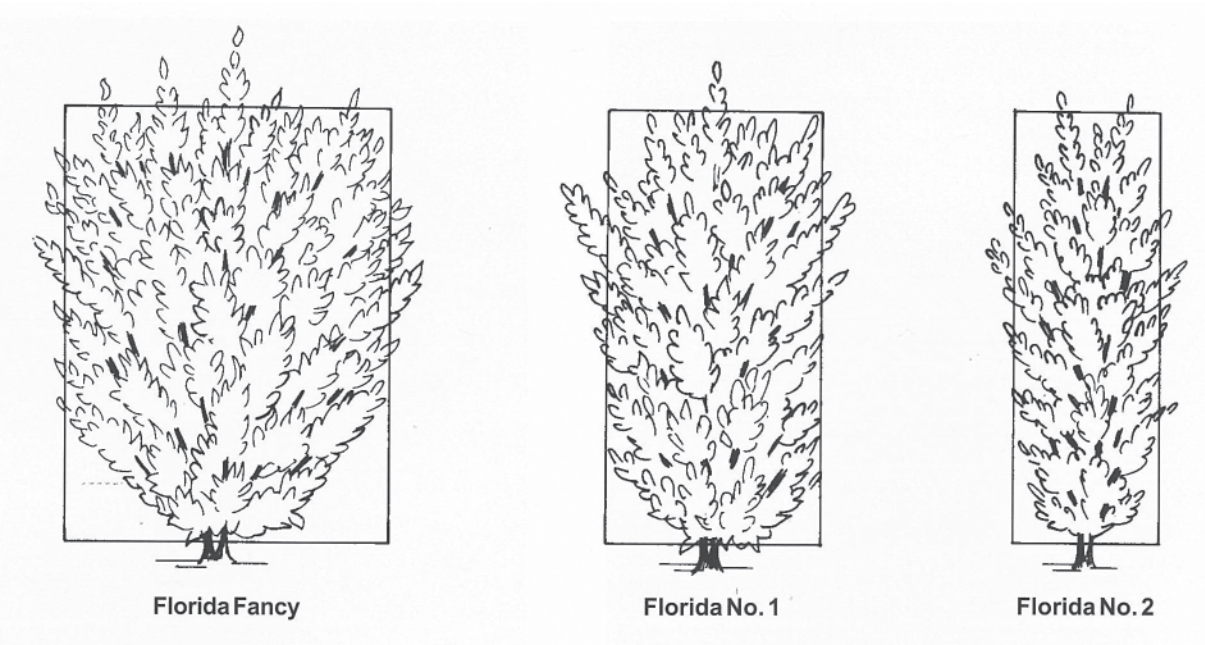
dwarf Chinese holly

variegated pittosporum

## TYPE US — UPRIGHT SPREADING

### MINIMUM AVERAGE SPREAD

| TOTAL HEIGHT | FLORIDA FANCY Equal total height | FLORIDA NO. 1 ⅔ of total height | FLORIDA NO. 2 ½ of total height | APPROX. CONTAINER SIZE |
|---|---|---|---|---|
| 9” | 7” | 4” | 3” | 1 GAL. |
| 12” | 9” | 6” | 4” | 1-2 GAL. |
| 15” | 11” | 7’ | 5” | 2-3 GAL. |
| 18” | 14” | 9” | 6” | 3 GAL. |
| 24” | 18” | 12” | 8” | 3-4 GAL. |
| 30” | 22” | 15” | 10” | 3-7 GAL. |
| 36” | 27” | 18” | 12” | 5 GAL. + |
| 48” + | ¾ of total height | ½ of total height | ½ of total height | 7 GAL. + |



## TYPE US — UPRIGHT SPREADING
### Florida Fancy Examples

boxwood

powderpuff

bougainvillea

cocoplum

sea-grape

oleander

TOP

## TYPE US — UPRIGHT SPREADING
### Florida No. 1 Examples

boxwood

powderpuff

bougainvillea

cocoplum

sea-grape

oleander

## TYPE US — UPRIGHT SPREADING
### Florida No. 2 Examples

boxwood

powderpuff

bougainvillea

cocoplum

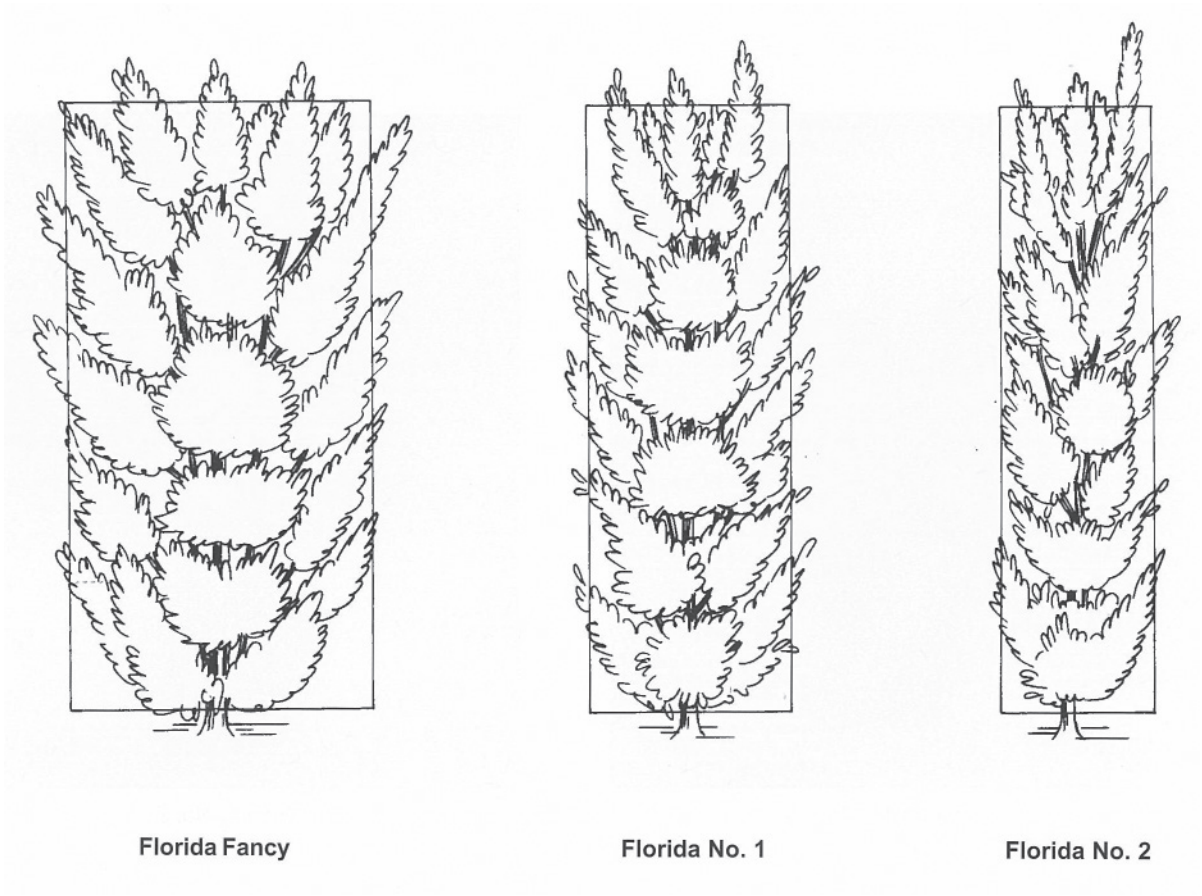
sea-grape

oleander

## TYPE U — UPRIGHT

### MINIMUM AVERAGE SPREAD

| TOTAL HEIGHT | FLORIDA FANCY ½ total height | FLORIDA NO. 1 ⅓ of total height | FLORIDA NO. 2 ¼ of total height | APPROX. CONTAINER SIZE |
|---|---|---|---|---|
| 9” | 4” | 3” | 2” | 1 GAL. |
| 12” | 6” | 4” | 3” | 1-2 GAL. |
| 18” | 9” | 6’ | 4” | 2-3 GAL. |
| 2’ | 12” | 8” | 6” | 3 GAL. |
| 3’ | 18” | 12” | 9” | 3-7 GAL. |
| 4’ + | ½ of total height | ⅓ of total height | ¼ of total height | 5 GAL. + |



## TYPE U — UPRIGHT
## Florida Fancy Examples

copper-leaf

Ocala anise, yellow anise

Hollywood juniper, twisted juniper

## TYPE U — UPRIGHT
## Florida No. 1 Examples

copper-leaf

Ocala anise, yellow anise

Hollywood juniper, twisted juniper

## TYPE U — UPRIGHT
## Florida No. 2 Examples

copper-leaf

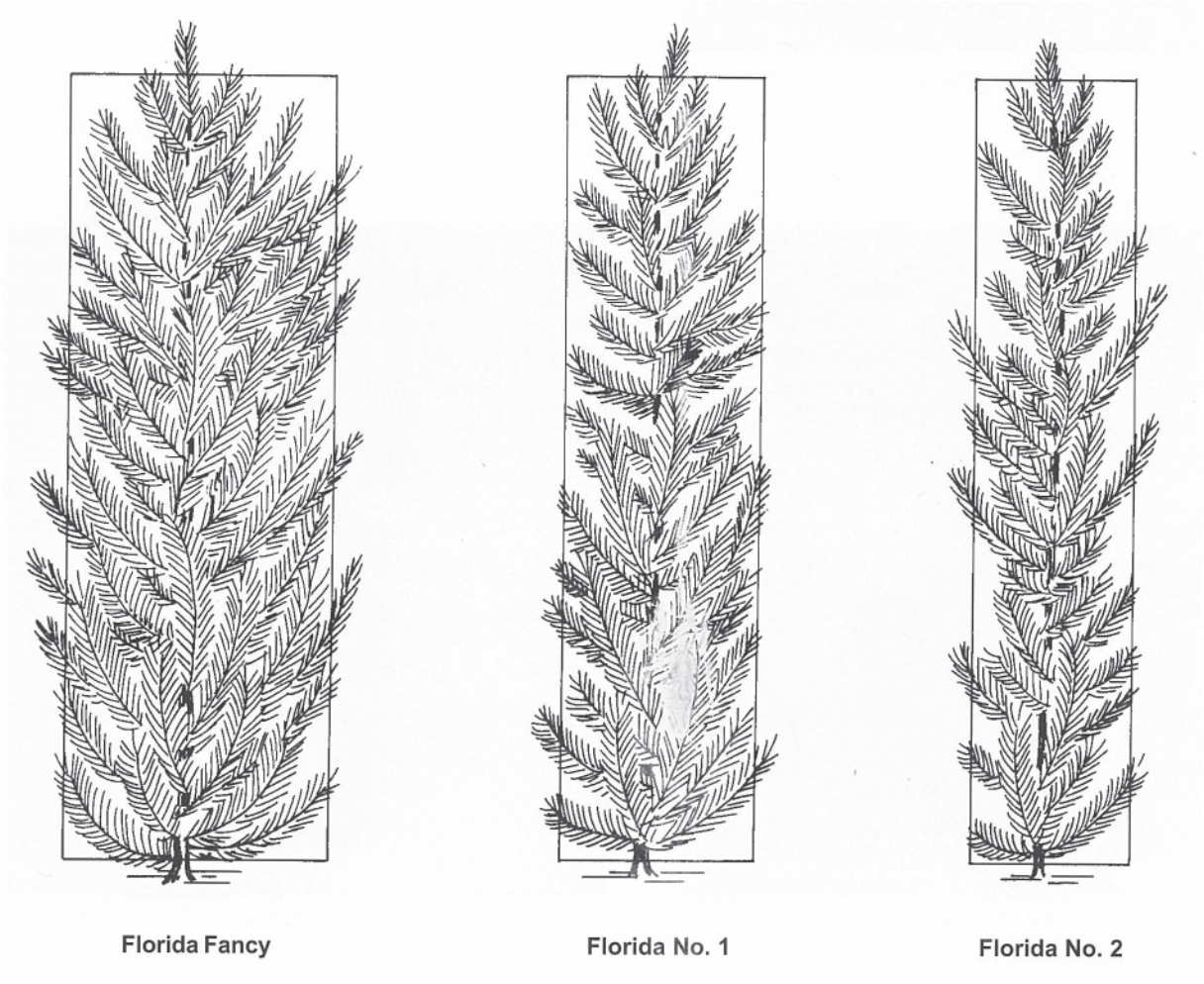
Ocala anise, yellow anise

Hollywood juniper, twisted juniper

## TYPE C — COLUMNAR

### MINIMUM AVERAGE SPREAD

| TOTAL HEIGHT | FLORIDA FANCY ⅓ total height | FLORIDA NO. 1 ¼ of total height | FLORIDA NO. 2 ⅕ of total height | APPROX. CONTAINER SIZE |
|---|---|---|---|---|
| 18” | 6” | 4” | 3” | 1-2 GAL. |
| 24” | 8” | 6” | 4” | 2-3 GAL. |
| 36” | 12” | 9’ | 6” | 3-4 GAL. |
| 48’ | 16” | 12” | 9” | 4-5 GAL. |
| 60’ | 20” | 15” | 12” | 7 GAL. |
| 72’ + | ⅓ of total height | ¼ of total height | ⅕ of total height | 10 GAL. + |



## TYPE C — COLUMNAR

Florida Fancy

Scientific name: ***Podocarpus macrophyllus***
Common name: **Podocarpus**

Florida No. 1

Florida No. 2

## TYPE SG — SPECIAL GRADE

Any plant grown or developed in an unusual manner or form which changes its artistic or aesthetic value may be graded as it would otherwise, except for form, and labeled as a special:

Florida Fancy Special
Florida No. 1 Special
Florida No. 2 Special

This special grade may include:

1. Plants which have been sheared and/or shaped into special or unusual forms.
2. Plants which are unusual in appearance.
3. Espaliered plants.
4. Bonsai (dwarf plant or tree).

This special grade shall not include plants which are normal in shape and form for the variety.

**TYPE SG - SPECIAL GRADE**

Scientific name: ***Gardenia augusta* (L.) Merrill**
Common name: **cape-jasmine**
Synonym: ***G. jasminoides* Ellis**

**TYPE SG - SPECIAL GRADE**

Scientific name: ***Juniperus chinensis* L. 'Sylvestris'**
Common name: **Sylvester juniper**

**TYPE SG - SPECIAL GRADE**

Scientific name: ***Syzygium paniculatum* Gaertn.**
Common name: **brush-cherry**
Synonym: ***Eugenia myrtifolia* Sims**

**TYPE SG - SPECIAL GRADE**

Scientific name: ***Hibiscus rosa-sinensis* L.**
Common name: **Chinese hibiscus, China-rose hibiscus**

## TYPE SS — SPECIFIC SPECIFICATIONS

## BASAL ROSETTES

**Agave, Aloe, Crinum, Yucca; plants that have basal rosettes and are stemless**

All species with stiff, heavy or thick and persistent leaves are included in the following grade standard specifications. Illustrated below is an example:

Scientific name: ***Crinum asiaticum* L.**
Common name: **grand crinum, poison bulb**

Florida Fancy

Florida No. 1

Florida No. 2

## TYPE SS — BASAL ROSETTES

### Florida Fancy

1. **Foliage:**
   a. Twelve or more perfect leaves.
   b. Leaves beginning at ground level.
   c. Color, shape and substance indicative of the species.
2. **Root system:**
   a. Sturdily established in the container or with sufficient roots for normal growth and vitality, if moved bare-root.

---

### Florida No. 1

1. **Foliage:**
   a. Nine or more perfect leaves. Basal or first two rows may be neatly pruned at base of plant.
   b. No more than three leaves may show slight blemishes, or well-healed pest or mechanical damage. These leaves must be situated near ground level or on an inconspicuous portion of the plant.
   c. Color, shape and substance indicative of the species.
2. **Root system:**
   a. Sturdily established in the container or with sufficient roots for normal growth and vitality, if moved bare-root.

---

### Florida No. 2

1. **Foliage:**
   a. Six or more good leaves.
   b. Color, shape and substance indicative of the species.
2. **Root system:**
   a. Sturdily established in the container or with sufficient roots for normal growth and vitality, if moved bare-root.

## TYPE SS — STEMMED ROSETTES

***Yucca*** spp. **stemmed or arborescent**

Illustrated below an example:

Scientific name: ***Yucca aloifolia* L.**
Common name: **Spanish bayonet**

Types of Yucca:

1. Full-foliaged with leaves beginning near ground level.
2. Dead persistent leaves adhering to trunk.
3. Clear trunk with no leaves.

Type desired must be stated in specifications. All types must have a top measured according to grade specifications. Unrooted cuttings must meet all specifications for grade, except root system specifications which will not apply.

Measurement of foliage is from the lowest point where leaves extend perpendicular from trunk, upward to overall height.

If more than one top is desired, multiple tops should be specified.

Florida Fancy

Florida No. 1

Florida No. 2

## TYPE SS — STEMMED ROSETTES

### Florida Fancy

1. **Trunk:**
   a. Sufficiently straight to remain in an upright position.
   b . Buyer's preference as to type.
   c. Solid and undamaged

2. **Foliage:**
   a. Unblemished leaves with length, color, width and substance indicative of the species and variety.
   b. Leafed portion must have a height equal to the width.
   c. Buyer's preference as to type.

3. **Root System:**
   a. Sturdily established in the container or ball.

---

### Florida No. 1

1. **Trunk:**
   a. Sufficiently straight to remain in an upright position.
   b. Buyer's preference as to type.
   c. Any pest or mechanical damage must be completely healed and no more than ¼ inch deep.

2. **Foliage:**
   a. No more than 25% of the leaves may show blemishes, discoloration, or aging.
   b . Leafed portion must have a height ¾ of the width.

3. **Root System:**
   a. Sturdily established in the container or ball.

---

### Florida No. 2

1. **Trunk:**
   a. Buyer's preference as to type.
   b . Any pest or mechanical damage must be no more than one-inch deep.

2. **Foliage:**
   a. No more than 50% of the leaves may show blemishes, discoloration or aging.
   b. Leafed portion must have a height ½ of the width.

3. **Root System:**
   a. Sturdily established in the container or ball.

## TYPE SS — FERNS

Scientific name: ***Cyrtomium falcatum*** **(L.f.) Presl**
Common name: **Japanese holly fern**

Florida Fancy

Florida No. 1

Florida No. 2

## TYPE SS — FERNS

**EXAMPLES: Boston fern, Japanese holly-fern, leather fern and leatherleaf fern**

### Florida Fancy

1. **Foliage:**
   a. Minimum of 15 perfect fronds.
   b . All fronds extending around root stock in a circular pattern.
   c. Color, shape and substance indicative of the species.

2. **Root System:**
   a. Roots firmly established in container.

---

### Florida No. 1

1. **Foliage:**
   a. Minimum of 10 perfect fronds.
   b. All fronds extending around root stock from ¾ to a full circular pattern.
   c. Color, shape and substance indicative of the species.

2. **Root System:**
   a. Roots firmly established in container.

---

### Florida No. 2

1. **Foliage:**
   a. Minimum of six or more perfect fronds.
   b. Fronds extending irregularly from root stock or from only ½ to ¾ of a circle.

2. **Root System:**
   a. Roots firmly established in container.

## TYPE G — GLOBOSE AZALEAS

Although azaleas are to be graded under Globose or Type G, many Kurumes and all forcing azaleas will be Spreading or Type S up to certain sizes, if well grown. It is not to be construed that an azalea with a width ratio wider than height be downgraded.

## MEASUREMENT

A few varieties are listed to give examples of growth habits.

1. **Landscape:**

*Southern Indian Hybrids*

Brilliant
Due de Rohan
Formosa
Normelle White
Red Ruffles
Pride of Mobile
Prince of Orange
Southern Charm
Violacea Rubra

The following Southern Indicas have a more open growth habit and the foliage compactness is not expected to be as dense as that of those listed above:

President Clay
Elegans
Lawsal
Mrs. G. G. Gerbing
Sublanceolata
George L. Taber

*Kurume Hybrids*

Coral Bells
Christmas Cheer
Hexe
Hino-Crimson
Snow

*Pericat Hybrids*

Gardenia Supreme
Holiday
Madam Pericat
Sweetheart
Sweetheart Supreme

2. **Florists' or Greenhouse Forcing**

*Kurume Hybrids*

Coral Bells
Christmas Cheer
Hexe
Hino-Crimson

*Pericat Hybrids*

Holiday
Pericat Pink
Sweetheart Supreme
Mrs. Alice W. Mueller

*Rutherford Hybrids*

Alaska
Constance

*Belgian Indian Hybrids*

Albert-Elizabeth
Hexe de Saffelaere
Jean Haerens
Triomphe
Vervaeneana

## FLORIDA FANCY

An exceptionally healthy and vigorous plant which is very well shaped, heavily branched and densely foliated (subject to natural growth of the variety).

1. **Canes or Trunk(s) and Branches:**
   a. Very well formed and sturdy.
   b. Branching plentiful and uniformly distributed close to ground level.
   c. Free of cracks, splits or cambium peeling.
   d. Pruning scars clean cut leaving little or no protrusion from the trunk or branch.
   e. Not hardened by excessive maturity or stopping of growth during growth cycle.
   f. No mechanical or pest damage.
   g. No extreme succulence.
   h. Contains no dead wood.

2. **Foliage:**
   a. Densely supplied with healthy, vigorous leaves of normal size, shape, color and texture.
   b. No holes, cavities or depressed areas caused by broken, dead or insufficient foliage.

c. No chlorosis.
d. Pest damage barely perceptible, with no more than 5% of total foliage affected.
e. No frost or cold damage discernible.

3. **Root System:**
a. Container-grown.
(1) Sturdily established in container.
(2) Not rootbound.
(3) No large roots growing out of container.
b. Balled or balled and burlapped (B&B).
(1) Sturdily established in ball.
(2) Plants must contain sufficient roots for continued growth without resulting shock.
(3) Minimum ball size: see chart, page 7.
c. Balled stock, not burlapped or wrapped.
(1) Abundance of fibrous and lateral feeder roots that cling and hold a compact ball when pulled up or dug.
(2) It is strongly recommended that all balled (not burlapped) stock be kept moist, out of direct sunlight or drying breezes, and protected by a mulch, such as shavings, sawdust, wood bark or other trade-accepted mulch until sold.
d. Bare-rootstock.
This is not desirable, nor recommended, and is ineligible for grading on all azalea varieties suitable for Florida growing conditions.

## FLORIDA NO. 1

A healthy, vigorous plant which is well shaped, well branched and well foliated (subject to natural growth of the variety).

1. **Canes or Trunk(s) and Branches:**
a. Well formed and sturdy.
b. Branching uniformly distributed close to ground level.
c. Free of cracks, splits or cambium peeling.
d. Pruning scars clean cut leaving little or no protrusion from trunk or branch.
e. Not hardened by excessive maturity or stopping of growth during growth cycle.
f. Any mechanical or pest damage must be 75% healed, no deeper than cambium layer, and no larger than 25% of diameter of wood.
g. No extreme succulence.

2. **Foliage:**
a. Well supplied with leaves of normal size, shape, color and texture.
b. No holes, cavities or depressed areas any deeper or wider in area than 25% of the average diameter of the plant.
c. Maximum chlorosis very slight and not more than 10% of total foliage.
d. Pest or mechanical damage confined to no more than 10% of total foliage.
e. Frost or cold damage confined to no more than a slight tip burn on the leaves covering 10% or less of the leaf canopy surface area.

3. **Root System:**
a. Container-grown.
(1) Sturdily established in container.
(2) Not excessively rootbound except plants deliberately grown rootbound to produce a dwarf plant.
(3) No large roots growing out of container.
b. Balled or balled and burlapped (B&B).
(1) Sturdily established in ball that has been tightly wrapped and securely tied with twine, or wire or pinned.
(2) Plants must contain sufficient roots for continued growth without resulting shock.
(3) Minimum ball size: see chart, page 7.
c. Balled stock, not burlapped or wrapped.
(1) Abundance of fibrous and lateral feeder roots that cling and hold a compact ball when pulled up or dug.
(2) It is strongly recommended that all balled (not burlapped) stock be kept moist, out of direct sunlight or drying breezes, and protected by a mulch, such as shavings, sawdust, wood bark or other trade-accepted mulch until sold.
d. **Bare-rootstock.**
This is not desirable, nor recommended, and is ineligible for grading on all azalea varieties suitable for Florida growing conditions.

## FLORIDA NO. 2

A healthy, vigorous plant which is fairly well shaped, with fair branching and fair foliage (subject to natural growth of the variety).

1. **Canes or Trunk(s) and Branches:**
   a. Well formed and sturdy.
   b. Fair branching with fair distribution.
   c. Scars free of rot and do not exceed in greatest dimension twice the diameter of the wood beneath unless clean and healed 75% or better (except pruning scars).

2. **Foliage:**
   a. Fairly well supplied with leaves of good size, shape, color, and texture.
   b. Maximum chlorosis 25% of total foliage.
   c. Insect and other mechanical injury shall not exceed approximately 25% of individual leaves nor affect more than 50% of total foliage.
   d. Frost or cold damage confined to foliage on branch tips, no more than 20% of length of branches, nor affecting more than 25% of the leaf canopy surface area.

3. **Root System:**
   a. Container-grown.
      (1) Sturdily established in container.
      (2) Not excessively rootbound except plants deliberately grown rootbound to produce a dwarf plant.
   b. Balled or balled and burlapped (B&B).
      (1) Sturdily established in ball that has been tightly wrapped and securely tied with twine or wire, or pinned.
      (2) Plant must contain sufficient roots for continued growth without resulting shock.
      (3) Minimum ball size: see chart page 7.
   c. Balled stock, not burlapped or wrapped.
      (1) Abundance of fibrous and lateral feeder roots that cling and hold a compact ball when pulled up or dug.
      (2) It is strongly recommended that all balled (not burlapped) stock be kept moist, out of direct sunlight or drying breezes, and protected by a mulch, such as shavings, sawdust, wood bark or other trade-accepted mulch until sold.
   d. Bare-rootstock.
      This is not desirable, nor recommended, and is ineligible for grading on all azalea varieties suitable for Florida growing conditions.

## TYPE G — GLOBOSE AZALEAS
### Florida Fancy Examples

Formosa azalea

red ruffles azalea

coral bells azalea

## TYPE G — GLOBOSE AZALEAS
### Florida No. 1 Examples

Formosa azalea

red ruffles azalea

coral bells azalea

## TYPE G — GLOBOSE AZALEAS
### Florida No. 2 Examples

Formosa azalea

red ruffles azalea

coral bells azalea

## TYPE US — CAMELLIAS

### (Two-year and older grafts and plants on their own rootstock)

### FLORIDA FANCY

An exceptionally healthy and vigorous plant which is very well shaped, heavily branched and densely foliated (subject to natural growth of the variety).

1. **Canes or Trunk(s) and Branches:**
   a. Very well formed and sturdy.
   b. Branching plentiful and uniformly distributed close to ground level.
   c. No scarring allowed except pruning scars, clean cut, and leaving little or no protrusion.
   d. Graft union completely healed.
   e. No dead wood.
   f. No extreme succulence.
   g. No mechanical or pest damage.

2. **Foliage:**
   a. Densely supplied with healthy, vigorous leaves of normal size, shape, color and texture.
   b. No holes, cavities or depressed areas caused by broken, dead or insufficient foliage.
   c. No chlorosis.
   d. Pest damage barely perceptible with no more than 5% of total foliage affected.
   e. No frost or cold damage discernible.

3. **Root System:**
   a. Container-grown stock.
      (1) Sturdily established in container.
      (2) Not excessively rootbound except plants deliberately grown rootbound to produce a dwarf plant.
      (3) No large roots growing out of container.
   b. Balled or balled and burlapped stock (B & B).
      (1) Sturdily established in ball that has been tightly wrapped and securely tied with twine or wire, or pinned.
      (2) Plants must have been previously root pruned and/or contain sufficient roots for continued growth without resulting shock.
      (3) Minimum ball size: see chart, page 7.
   c. Bare-rootstock.
      (1) Roots healthy and vigorous, characterized by very good color and succulence.
      (2) Well supplied with main lateral roots, uniformly distributed around crown or taproot.
      (3) Well supplied throughout fibrous (feeder) roots.
      (4) Insect lesions and other mechanical injury well calloused and not to exceed in greatest dimension ¼ the diameter of the root beneath unless completely healed.
      (5) Root system must be kept moist and protected from excess heat, cold, sun or wind at all times.
      (6) Root system with a minimum spread and depth equal to minimum ball size when root pruned prior to digging, or ⅓ greater than minimum ball size if not root pruned. See chart page 7.

### FLORIDA NO. 1

A healthy, vigorous plant which is well shaped, well branched and well foliated (subject to natural growth of the variety).

1. **Canes or Trunk(s) and Branches:**
   a. Well formed and sturdy.
   b. Good branching, uniformly distributed close to ground level.
   c. No scarring allowed except pruning scars, clean cut, and leaving little or no protrusion.
   d. Graft union 75% healed.
   e. No dead wood.
   f. No extreme succulence.
   g. No mechanical or pest damage.

2. **Foliage:**
   a. Well supplied with leaves of normal size, shape, color and texture.
   b. No holes, cavities or depressed areas caused by broken or dead foliage.
   c. Maximum chlorosis very slight and not more than 10% of total foliage .

d. Pest or mechanical damage confined to no more than 10% of total foliage.
e. Frost or cold damage confined to no more than a slight tip burn on the leaves covering 10% or less of the surface area.

3. Root System:
   a. Container-grown stock.
      (1) Sturdily established in container.
      (2) Shall not be excessively rootbound except plants deliberately grown rootbound to produce a dwarf plant.
      (3) No large roots growing out of container.
   b. Balled or balled and burlapped stock (B & B).
      (1) Sturdily established in ball that has been tightly wrapped and securely tied with twine or wire, or pinned.
      (2) Plants must have been previously root pruned and/or contain sufficient roots for continued growth without resulting shock.
   c. Bare-rootstock.
      (1) Roots healthy and vigorous, characterized by very good color and succulence.
      (2) Well supplied with main lateral roots, uniformly distributed around crown or taproot.
      (3) Well supplied throughout with fibrous (feeder) roots.
      ( 4) Any damaged roots that are frayed, broken or ragged must be cleanly pruned.
      (5) Root system must be kept moist and protected from excess heat, cold, sun or wind at all times.
      ( 6) Root system shall have a minimum spread and depth equal to minimum ball size when root pruned prior to digging, or 113 greater than minimum ball size if not root pruned. See chart, page 7.

## FLORIDA NO. 2

A healthy, vigorous plant which is fairly well shaped, with fair branching and fair foliage (subject to natural growth of the variety).

1. **Canes or Trunk(s) and Branches:**
   a. Fairly well formed and sturdy.
   b. Scars free of rot and do not exceed in greatest dimension twice the diameter of the wood beneath unless clean and healed 75% or better (except pruning scars).
   c. Fair branching with fair distribution.
   d. Graft union 50% healed.
   e. No dead wood.
   f. No extreme succulence.
   g. Pruning scars clean cut.

2. **Foliage:**
   a. Fairly well supplied with leaves of good size, shape, color and texture.
   b . Maximum chlorosis 25% of total foliage.
   c. Pest or mechanical damage confined to no more than 25% of total foliage.
   d. Frost or cold damage confined to foliage on branch tips, no more than 20% of length of branches, nor affecting more than 25% of the surface area.

3. **Root System:**
   a. Container-grown stock.
      (1) Sturdily established in container.
      (2) Not excessively root bound except plants deliberately grown root bound to produce a dwarf plant.
   b. Balled or balled and burlapped stock (B&B).
      (1) Sturdily established in ball that has been tightly wrapped and securely tied with twine or wire, or pinned.
      (2) Plant must have been previously root pruned and or contain sufficient roots for continued growth without resulting shock.
      (3) Minimum ball size: see chart, page 7.
   c. Bare-rootstock.
      (1) Roots healthy and vigorous, characterized by very good color and succulence.
      (2) Well supplied with main lateral roots, uniformly distributed around crown or taproot.
      (3) Well supplied throughout with fibrous (feeder) roots.
      (4) Any damaged roots that are frayed, broken or ragged must be cleanly pruned.
      (5) Root system must be kept moist and protected from excess heat, cold, sun or wind at all times.
      (6) Root system shall have a minimum spread and depth equal to minimum ball size when root pruned prior to digging, or 113 greater than minimum ball size if not root pruned. See chart, page 7.

**Downgrading Factors:**

**Graft Unions Healed**

100% Healed

75% Healed

50% Healed

## TYPE US — CAMELLIAS

Florida Fancy

Scientific name: ***Camellia japonica* L.**
Common name: **common camellia**

Florida No. 1

Florida No. 2

TOP

## TYPE G — SELF-HEADING

*Philodendron bipinnatifidum* Endl. *(Philodendron selloum* K. Koch) and others known in the trade as 'selloum types' such as crosses of and between:
*Philodendron bipinnatifidum* Endl. 'Uruguay'
*Philodendron giganteum* Schott
*Philodendron melononii* Brongn. ex Reg.
*Philodendron* 'Seaside'
*Philodendron speciosum* Schott ex Endl.
*Philodendron tweedianum* Schott
*Philodendron undulatum* Engl.
*Philodendron wendlandii* Schott
*Philodendron williamsii* Hook f.

### SIZES SOLD

| POT SIZE | PLANT SIZE |
|---|---|
| 2 inches | 4 - 6 inches |
| 3 inches | 6 - 12 inches |
| 6 inches | 8 - 12 inches |
| Gallons | 8 - 12, 12 - 18, 18 - 24 inches |
| No. 3, 3 Gallon | 18 - 24, 24 - 30, 30 - 36 inches |
| No. 7 to No. 25 | Sizes stated in feet |

Plants sold by size; size must be specified with the grade. Singles have one plant per container; doubles have two plants per container.

### FLORIDA FANCY

An exceptionally healthy and vigorous plant which is very well shaped and densely foliated (subject to natural growth of the variety).

1. **Foliage:**
   a. Exceptionally compact with perfect fully expanded leaves.

| CONTAINER SIZE | PLANTS PER CONTAINER | MINIMUM LEAVES |
|---|---|---|
| Gallon | 1 | 6 |
| Gallon | 2 | 12 |
| 3 to 5 gallon | 1 | 10 |
| 3 to 5 gallon | 2 | 12 |

   b. Petioles short, erect and strong.
   c. Color of leaves medium light to medium dark green.
   d. No mechanical or pest damage.
   e. No streaking, spotting or chlorosis.
   f. No extreme succulence.
   g. No frost or cold damage discernible.

2. **Root System:**
   a. Container-grown.
      (1) No roots growing out of container.
      (2) Healthy and vigorous, but not excessively running around top of container.

## FLORIDA NO. 1

A healthy, vigorous plant which is well shaped and well foliated (subject to natural growth of the variety).

1. **Foliage:**
   a. A good, round shape with one good leaf; balance of leaves perfect and fully expanded.

| CONTAINER SIZE | PLANTS PER CONTAINER | MINIMUM LEAVES |
|---|---|---|
| Gallon | 1 | 5 |
| Gallon | 2 | 10 |
| 3 to 5 gallon | 1 | 7 |
| 3 to 5 gallon | 2 | 10 |

   b. Petiole short to medium, erect and strong.
   c. Color of leaves light to medium green.
   d. No mechanical or pest damage.
   e. No streaking, spotting or chlorosis.
   f. No extreme succulence.
   g. No frost or cold damage discernible.

2. **Root System:**
   a. Container-grown.
      (1) No more than one root growing out of container and no longer than container's height.
      (2) Healthy and vigorous.
      (3) Sturdily established in container.

## FLORIDA NO. 2

A healthy, vigorous plant which is well shaped and well foliated (subject to natural growth of the variety).

1. **Foliage:**
   a. One good leaf; balance of leaves perfect and fully expanded.

| CONTAINER SIZE | PLANTS PER CONTAINER | MINIMUM LEAVES |
|---|---|---|
| Gallon | 1 | 3 |
| Gallon | 2 | 6 |
| 3 to 5 gallon | 1 | 5 |
| 3 to 5 gallon | 2 | 8 |

   b. Petiole medium to long with fair substance.
   c. Color of leaves very light to deep, dark green.
   d. No streaking, spotting or pest damage, but 10% chlorosis allowed for total foliage.
   e. Some succulence permitted.
   f. No mechanical, frost or cold damage.

2. **Root System:**
   a. Container-grown.
      (1) No more than two roots growing out of container and no longer than container's height.
      (2) Healthy and vigorous.
      (3) Sturdily established in container.

## TYPE G — SELF-HEADING

Scientific name: ***Philodendron bipinnatifidum*** **Endl.**
Common name: **philodendron, selloum**
Synonym: ***P. selloum*** **K. Koch**

Florida Fancy

Florida No. 1

Florida No. 2

## ROSE GRADES*

### GENERAL

The standards specified apply only to field-grown garden roses when sold bare-root, or individually wrapped and packaged, or in cartons.

All grades of roses must have a well-developed root system and have proportionate weight and caliper according to grade and variety. Roses shall be graded based on number and caliper of canes.

Rose bushes that do not meet these standards for the individual grades are defined as 'culls.'

As used in the grade sizes below, 'strong cane' means a cane that is healthy, vigorous and fully developed so that it is hardened-off throughout. The caliper of the cane is measured not higher than four inches (10 cm) from the bud union.

### HYBRID TEA, TEA, GRANDI FLORA, RUGOSA HYBRIDS, HYBRID PERPETUAL, MOSS AND CLIMBING ROSES

**Grade Fancy:**

At least three strong canes, 5⁄16 inch (0.8 cm) in caliper and up, branched not higher than three inches (8.0 cm) from the bud union.

**Grade No.1:**

At least two strong canes, 5⁄16 inch (0.8 cm) in caliper and up, branched not higher than three inches (8 cm) from the bud union.

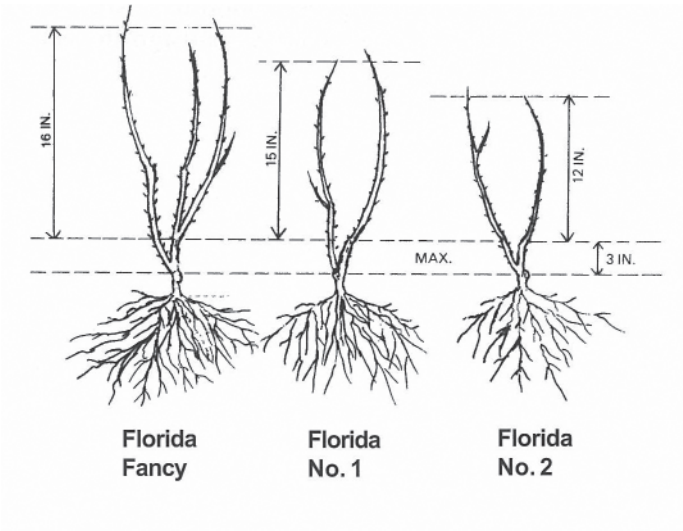
**Grade No.2:**

At least two canes, one of which shall be a strong cane, 5⁄16 inch (0 .8 cm) in caliper and up. The second shall be ¼ inch (0.6 cm) in caliper, branched not higher than three inches (8 cm) from the bud union.

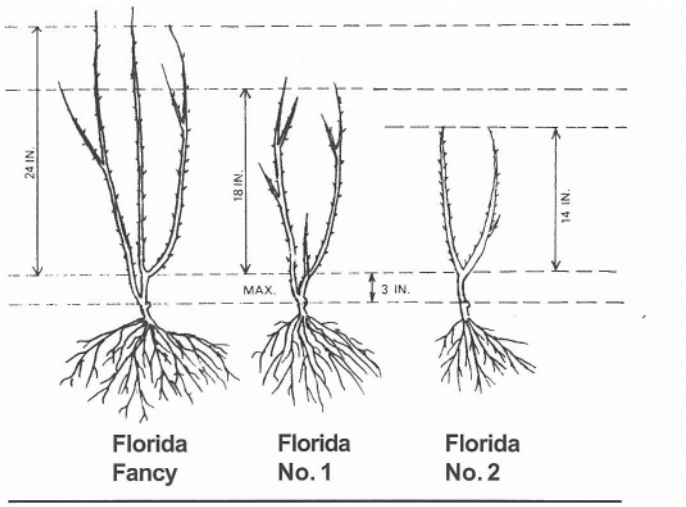
**Note:**

Although Floribunda roses are included in the above grade standard, it should be noted that Floribunda roses in this group will normally result in the marketing of rose bushes which are, on the average, lighter for this class. Polyantha, shrub, landscape and low-growing Floribunda roses may be graded per the following section.

**Hybrid Tea, Tea, Grandiflora, etc. Roses**




**Climbing Roses**




Taken from the American Association of Nurserymen's publication,"American Standard for Nursery Stock," section 5, pages 21 and 22; revised 1/90 (with the exception of the grade designations).

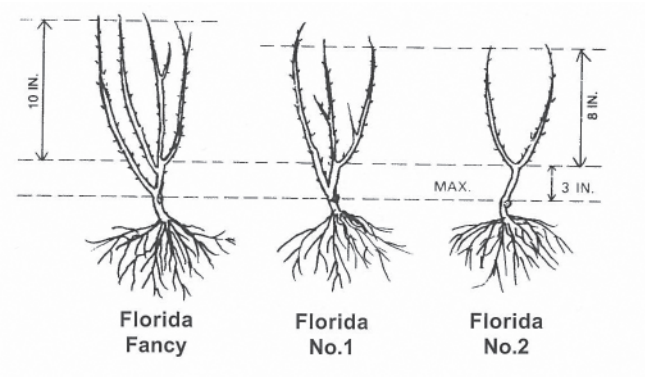
## POLYANTHA, SHRUB, LANDSCAPE AND LOW-GROWING FLORIBUNDA ROSES

**Grade Fancy:**
At least three (strong) canes, ¼ inch (0.6 cm) in caliper and up, branched not higher than three inches (8 cm) from the bud union.

**Grade No.1:**
At least two (strong) canes, ¼ inch (0.6 cm) in caliper and up, branched not higher than three inches (8 em) from the bud union.

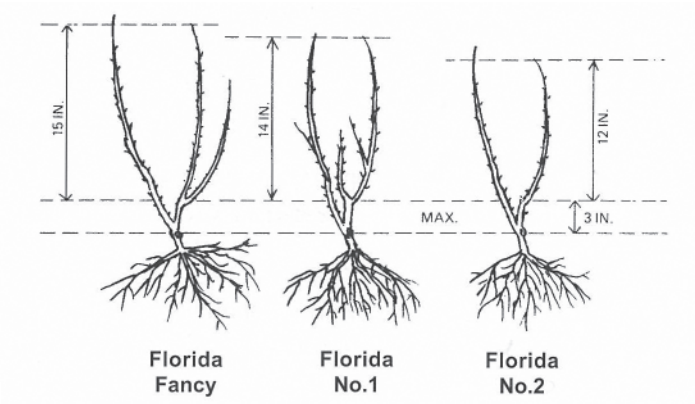
**Grade No.2:**
At least two canes, one of which shall be a (strong) cane, ¼ inch (0.6 cm) in caliper and up and branched not higher than three inches from bud union.

**Polyantha Roses**




Branched more than 3 in. above bud union do not count as canes

**Floribunda Roses**




Branched not higher than 3 in. above bud union

## CONTAINER-GROWN ROSES

All container-grown roses shall have been growing in the container in which they are marketed for a minimum of one month of the active growing season and for a maximum of two growing seasons. Roses may be cut back to a minimum of four inches (10 cm) above the bud union at the time they are potted and should comply with the grades in which they are classified prior to pruning in preparation for potting.

All container-grown roses should be sold by both rose grade as specified above and and should be a minimum three-gallon size.

## TYPE GC — GROUNDCOVERS

### INTRODUCTION

Generally, groundcovers are plants whose horizontal dimensions tend to exceed their vertical dimensions. These plants when used in mass create a covering of the soil areas within a landscaped planting.

Groundcovers have several functional values. They serve as a method for weed control, add color and texture to the landscape, control erosion, provide a fire-retardant border and serve as substitutes for lawns.

### GENERAL GRADE STANDARDS — CONTAINER-GROWN STOCK

#### Florida Fancy

An exceptionally healthy and vigorous plant which is very well-shaped, heavily branched and densely foliated (subject to natural growth of the variety).

1. **Foliage:**
   a. Densely supplied with healthy, vigorous leaves of normal size, shape, color and texture.
   b. No holes, cavities, or depressed areas caused by broken or dead branches or insufficient foliage.
   c. No chlorosis.
   d. Pest or mechanical damage barely perceptible with no more than 5% of total foliage affected.
   e. No frost or cold damage discernible.
   f. Densely supplied covering all soil and extending past the rim of the container.

2. **Root System:**
   a. Sturdily established in container.
   b. Not excessively root bound except plants deliberately grown rootbound to produce a dwarf plant.
   c. No large roots growing out of container.
   d. No noxious weeds in container.

#### Florida No. 1

A healthy, vigorous plant which is well-shaped, well-branched and well-foliated (subject to natural growth of the variety).

1. **Foliage:**
   a. Well supplied with leaves of normal size, shape, color and texture.
   b. No holes, cavities or depressed areas caused by broken or dead foliage.
   c. Maximum chlorosis very slight and not more than 10% of total foliage.
   d. Pest or mechanical damage confined to no more than 10% of total foliage.
   e. Frost or cold damage confined to no more than a slight tip burn on the leaves covering 10% or less of the surface area.
   f. Leaves extending over container but leaving not more than ¼ of container soil exposed to view.

2. **Root System:**
   a. Sturdily established in container.
   b. Not excessively root bound except plants deliberately grown root bound to produce a dwarf plant.
   c. No large roots growing out of container.

## Florida No. 2

A healthy, vigorous plant which is fairly well-shaped, with fair branching and fair foliage (subject to natural growth of the variety).

1. **Foliage:**
   a. Fairly well supplied with leaves of good size, shape, color and texture.
   b. Maximum chlorosis 25% of total foliage.
   c. Pest or mechanical injury shall not exceed approximately 25% of individual leaves nor affect more than 25% of total foliage.
   d. Frost or cold damage confined to foliage on branch tips, no more than 20% of length of branches, nor affecting more than 25% of the total surface area.
   e. Leaves fairly well supplied, but leaving up to half of container soil exposed to view.

2. **Root System:**
   a. Sturdily established in container.
   b. Not excessively root bound except plants deliberately grown root bound to produce a dwarf plant.
   c. No large roots growing out of container.
   d. No noxious weeds in container.

## TYPE GC — GROUNDCOVERS
### Florida Fancy Examples

asparagus-fern, sprengeri

cast iron plant

blue rug juniper

## TYPE GC — GROUNDCOVERS
## Florida No. 1 Examples

asparagus-fern, sprengeri

cast iron plant

blue rug juniper

## TYPE GC — GROUNDCOVERS
## Florida No. 2 Examples

asparagus-fern, sprengeri

cast iron plant

blue rug juniper

## TYPE V — ORNAMENTAL VINES

The woody vines constitute a group of ornamental plants as important as trees and shrubs for creating landscape effects of color, texture and form. They are adapted to many landscape situations which are difficult or impossible to fill with trees or shrubs.

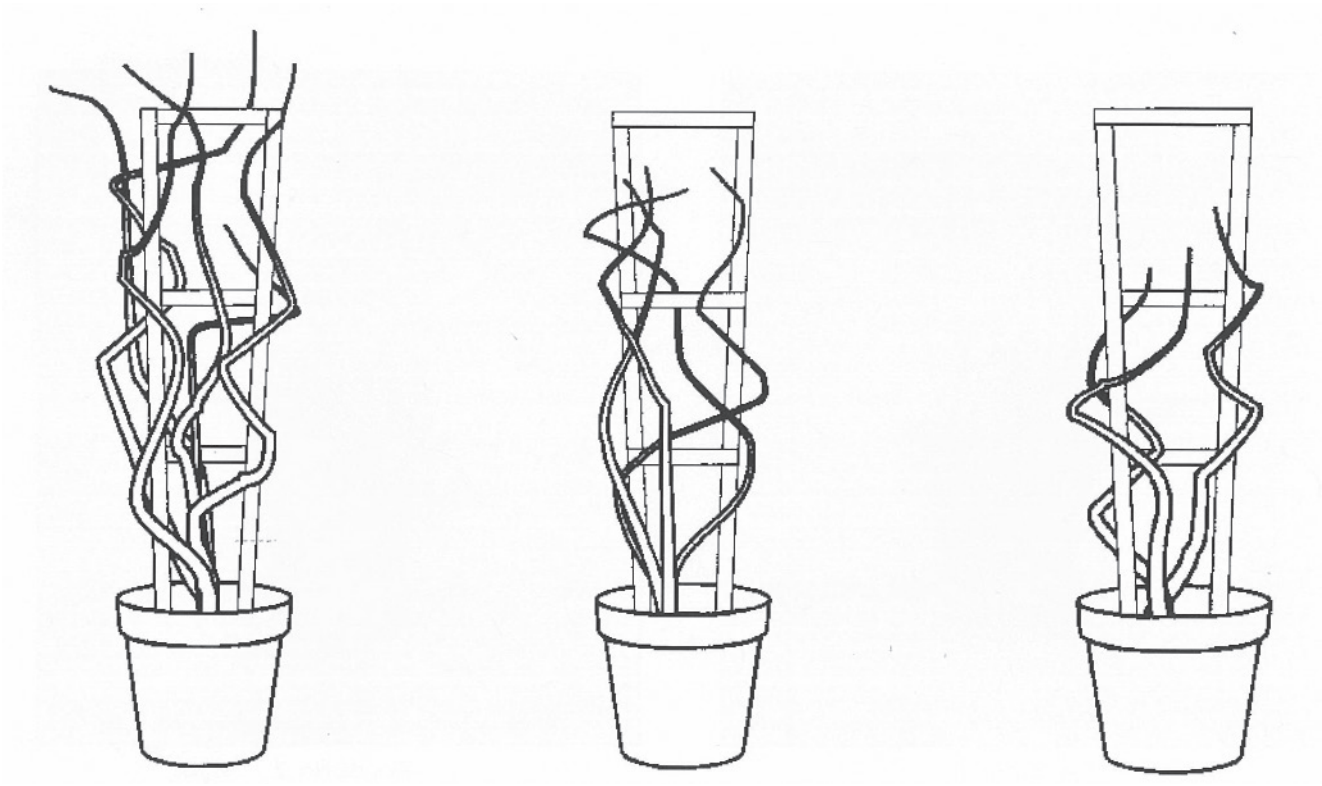
It is not always easy to distinguish between a climbing shrub and a vine. Several well-known vines (bougainvillea, some species of jasmine and wisteria) with some pruning may be grown as shrubs whereas some reclining shrubs (Chinese-hat-plant and elaeagnus) can be grown as vines.

Since vine grades are determined by the number and length of runners, all vines, regardless of grade, should exhibit the following characteristics:

1. **Runners:**
   a. Well formed and properly supported (staked or trellised).
   b. Branching plentiful and uniformly distributed to form a well-balanced plant.
   c. No mechanical, pest or cold damage.

2. **Foliage:**
   a. Densely supplied with healthy, vigorous leaves of normal size, shape, color and texture (except deciduous vines when dormant).
   b. No chlorosis.
   c. No mechanical or pest damage.

3. **Root System:**
   a. Sturdily established in container.
   b. Not excessively root bound.
   c. No large roots growing out of container.
   d. No noxious weeds in container.



**Florida Fancy**

**Minimum of 5 runners no less than 4' long**

**Florida No.1**

**Minimum of 4 runners no less than 3' long**

**Florida No.2**

**Minimum of 3 runners no less than 2'½• long**

## TYPE V — VINES
### Florida Fancy Examples

yellow allamanda

Mexican flame vine

purple passion vine

## TYPE V — VINES
## Florida No. 1 Examples

yellow allamanda

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## TYPE V — VINES
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## INDEX OF SHRUBS, GROUNDCOVERS AND VINES MOST GENERALLY SOLD BY FLORIDA NURSERIES WITH THE TYPE UNDER WHICH THEY ARE TO BE GRADED

**BS** - Broad Spreading **SBS** - Semi-broad Spreading

**S** - Spreading **G** - Globose **US** - Upright Spreading

**U** - Upright **C** - Columnar **GC** - Groundcover

**SG** - Special Grade **SS** - Specific Specifications **V** - Vines

| TYPE | SCIENTIFIC NAME | COMMON NAME |
|---|---|---|
| US | *Abelia x grandiflora* (Andre) Rehd. | glossy abelia |
| U | *Acalypha wilkesiana* (syn: *Acalypha amentacea* ssp. *wilkesiana* (Muell. - Arg.) Fosberg | copper-leaf |
| G | *Acca sellowiana* 0. Berg | pineapple-guava |
| GC | *Acrostichum danaeifolium* Langsd. & Fisch. | leather fern |
| US | *Afrocarpus falcata* (Thunb.) Page syn: *Podocarpus elongatus* (Aiton) L'Her. ex Pers. | Cape-yellowwood |
| US | *Afrocarpus gracilior* (Pilger) Page syn: Podocarpus gracilior Pilger | African fern-pine/ weeping podocarpus |
| GC | *Agapanthus africanus* | lily-of-the-Nile |
| GC | *Agapanthus africanus* 'Peter Pan' | Peter Pan, lily-of-the-Nile |
| SS | *Agave* spp. | century plant |
| GC | *Ajuga reptans* L. | carpet bugleweed |
| US | *Allamanda blanchetii* A. DC. syn: *A. violacea* G. Gardn. & Fielding | purple allamanda |
| V | *Allamanda cathartica* L. | yellow allamanda |
| S | *Allamanda schottii* Pohl syn: *A. neriifolia* Hook. f. | bush allamanda |
| GC | *Alocasia* spp. | elephant ear |
| SS | *Aloe* spp. | aloe |
| US | *Alpinia* spp. | shell ginger |
| GC | *Alternanthera Jicoidea* (L.) R. Br. | Jacob's/Joseph's Coat |
| GC | *Anthurium* spp. | tail flower |
| US | *Aralia* spp. Aralia japonica; see Fatsia japonica Aralia sieboldii; see Fatsia japonica | aralia |
| GC | *Argyranthemumfrutescens* (L.) Schultz-Bip. syn: *Chrysanthemum frutescens* L. | marguerite-daisy |
| SBS & GC | *Asparagus* spp. | asparagus-fern |
| SBS & GC | *Asparagus densiflorus* (Kunth) Jessop syn: *A. sprengeri* Reg. | asparagus-fern/ sprengeri |
| V | *Asparagus Jalcatus* L. | sickle thorn |
| GC | *Aspidistra elatior* Blume | cast iron plant |
| US | *Aucuba japonica* Thunb. | gold dust plant |
| US | *Barleria cristata* L. | Philippine-violet |
| V | *Bauhinia galpinii* N.E.Br. | red bauhinia |
| V | *Beaumontia grandiflora* (Roxb.) Wall. | herald's trumpet |
| | *Beloperone guttata;* see *Justicia brandegeana* | shrimp plant |
| BS | *Berberis thunbergii* DC. | Japanese barberry |
| GC | *Blechnum gibbum* (Labill.) Mett. | minature tree fern |

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|---|---|---|
| GC | *Blechnum serrulatum* Rich. | swamp fern |
| BS, GC, US & V | *Bougainvillea* spp. | bougainvillea |
| | *Brassaia actinophylla;* see *Schefflera actinophylla* | umbrella tree |
| US | *Buddleia* spp. | butterfly bush |
| US | *Bunts* spp. | boxwood |
| US | *Caesalpinia* spp. | caesalpinia |
| US | *Calliandra* spp. | powderpuff |
| US | *Callicarpa americana* L. | beauty berry |
| US | *Callistemon citrinus* (Curtis) Skeels | erect bottlebrush |
| U | *Callistemon* 'Red Cluster' | red cluster bottlebrush |
| U | *Calyptranthes* spp. | calyptranthes |
| US | *Camellia japonica* L. | common camellia |
| US | *Camellia sasanqua* Thunb. | sasanqua |
| G OR C | *Capparis cynophallophora* L. syn: *C. jamaicensis* Jacq. | Jamaican caper-tree |
| BS | *Carissa macrocarpa* (Ecklon) A. DC. syn: *C. grandiflora* (E.Mey.) A. DC. | natal-plum |
| BS | *Carissa macrocarpa* 'Albert' | Albert natal-plum |
| BS | *Carissa macrocarpa* 'Boxwood Beauty' | boxwood beauty natal-plum |
| BS | *Carissa macrocarpa* 'Emerald Blanket' | emerald blanket natal-plum |
| BS | *Cassia* spp. | cassia |
| GC | *Cephalanthus occidentalis* L. | buttonbush |
| US | *Cestrum nocturnum* L. | night blooming jessamine |
| GC | *Chlorophytum comosum* (Thunb.) Jacques | spider plant |
| | *Chrysanthemum frutescens;* see *Argyranthemum frutescens* | |
| | *Chrysanthemum leucanthemum;* see *Leucanthemum vulgare* | |
| | *Chrysanthemum x morifolium;* see *Dendranthema x grandiflorum* | |
| | *Chrysanthemum superbum;* see *Leucanthemum x superbum* | |
| US | *Chrysobalanus icaco* L. | cocoplum |
| US | *Citharexylum fruticosum* L. | Florida fiddlewood |
| US | *X Citrofortunella microcarpa* (Bunge) Wijnands syn: C. *mitis* (Blanco) J. Ingram & H.E. Moore | calamondin |
| GC | *Cleistocactus* spp. | firecracker cactus |
| V | *Clerodendrum thomsoniae* Balf. | bleeding heart |
| US | *Cleyera japonica* Thunb. | cleyera/ sakaki |
| V | *Clytostoma callistegioides* (Cham.) Bur. & Schum. | painted trumpet |
| US | *Coccoloba uvifera* (L.) L. | sea-grape |
| US | *Cocculus laurifolius* (Roxb.) DC. | snail seed |
| US | *Codiaeum variegatum* (L.) Juss. var. *pictum* (Lodd.) Muell.-Arg. | croton |
| GC | *Complaya trilobata* (L.) Strother syn: *Wedelia trilobata* (L.) Hitchc. | wedelia |
| US | *Conocarpus erectus* L. | buttonwood |
| US | *Conocarpus erectus* L. var. *sericeus* Fors. ex DC. | silver buttonwood |
| US | *Cordyline terminalis* (L.) Kunth | ti |
| GC | *Coreopsis auriculata* 'Nana' | dwarf tickseed |
| SS & GC | *Crinum americanum* L. | string lily /Florida swamp lily |
| SS | *Crinum asiaticum* L. | grand crinum/poison bulb |
| SS | *Crinum augustum* L. Roxb. syn: *C. ambile* J. Donn | giant string lily |
| GC | *Crossandra infundibuliformis* (L.) Nees | crossandra |
| SBS & GC | *Cuphea hyssopifolia* Kunth | false-/Mexican-heather |
| GC | *Curculigo capitulata* (Lour.) Kuntze syn: *Molineria recurvata* (Dryland. ex. Aiton) Herb. | palm-grass |
| V | *Cydista aequinoctialis* (L.) Miers | garlic vine |
| SS & GC | *Cyrtomium falcatum* (L.f.) Presl | Japanese holly-fern |

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|---|---|---|
| GC | *Dendranthema x grandiflorum* Kitam. | chrysanthemum |
| | syn: *Chrysanthemum x morifolium* Ramat. | |
| U | *Dodonaea viscosa* (L.) Jacq. | varnish leaf |
| S | *Dracaena* spp. | dragon tree |
| G | *Duranta erecta* L. | golden dewdrop |
| | syn: *D. plumieri* Jacq.& *D. repens* L. | |
| S | *Elaeagnus pungens* Thunb. | silverthorn |
| V | *Epipremnum aureum* (Lind . & Andre) Bunting | hunter's robe/pothos |
| GC | *Erigeron glaucus* Ker-Gawl. | seaside daisy |
| | *Eugenia compacta*; see *Syzygium* | |
| | *paniculatum* 'Compacta ' | |
| U | *Eugenia confusa* DC. | redberry stopper |
| U | *Eugenia coronata* Schumach. & Thonn. | African eugenia |
| U | *Eugenia eucalyptoides* F. Muell. | eucalyptus-leaf eugenia |
| U | *Eugenia foetida* Pers. | Spanish stopper |
| | *Eugenia myrtifolia;* see *Syzygium paniculatum* | |
| US | *Euonymus* spp. | strawberry-bush |
| S | Euphorbia milii Des Moul. | |
| | var. *splendens* (Bojer ex Hook.) | |
| | Ursch & Leandri | crown-of-thorns |
| | syn: *E. splendens* Bojer ex Hook. & | |
| | *E. bojeri* Hook. | |
| GC | *Evolvulus glomeratus* Nees & Mart. | blue daze |
| US | *Fatsia japonica* (Thunb.) Decne. & Planch. | fatsia |
| | syn: *Aralia japonica* Thunb. & | |
| | *Aralia sieboldii* de Vriese | |
| U | *Ficus* spp. | fig |
| BS, SBS & S | *Ficus microcarpa* | Green Island ficus |
| V | *Ficus pumila* L. | creeping fig |
| US | *Forestiera segregata* (Jacq.) Krug & Urban | florida-privet |
| SS | *Furcraea foetida* (L.) Haw. | giant false-agave /Mauritius-hemp |
| G | *Galphimia glauca* Cav. | thryallis/shower-of-gold |
| | syn: *Thryallis glauca* (Cav.) Kuntze | |
| G | *Gamolepis chrysanthemoides* DC. | California daisy |
| US & SG | *Gardenia augusta* (L.) Merr. | cape-jasmine |
| | syn: *G. jasminoides* Ellis | |
| V | *Gelsemium sempervirens* (L.) J. St.-Hil. | Carolina yellow jessamine |
| V | *Grewia caffra* Meissn. | star of India |
| V | *Grewia occidentalis* L. | star flower |
| US | *Guaiacum sanctum* L. | lignum-vitae |
| US | Hamelia patens Jacq. | fire bush/scarlet bush |
| | syn: *H. erecta* Jacq. & *H. sphaerocarpa* Ruiz & Pav. | |
| V | *Hedera canariensis* Willd. | Algerian Ivy |
| GC & V | Hedera helix L. | English Ivy |
| U | *Heliconia* spp. | wild-plantain |
| GC | *Hemerocallis* spp. | day lily |
| US | *Hibiscus* spp. | hibiscus |
| D & SG | *Hibiscus rosa-sinensis* L. | Chinese/China-rose hibiscus |
| G | *Hydrangea macrophylla* (Thunb.) Ser. | garden hydrangea |
| US | *Hydrangea quercifolia* Bartram | oakleaf hydrangea |
| U | *Ilex x attenuata* Ashe | hybrid holly |
| | origin: *I. cassine* L. X *I. opaca* Aiton | |
| U | *Ilex x attenuata* 'East Palatka' | East Palatka holly |
| U | *Illex x attenuata* 'Savannah' | Savannah holly |
| U | *Ilex cassine* L. | Dahoon holly |
| G | *Ilex cornuta* Lindl. & Paxt. | Chinese holly |
| G | *Ilex cornuta* 'Burfordii' | Burford holly |
| G | *Ilex cornuta* 'Dwarf Burford' dwarf | Burford holly |
| | syn: *I. cornuta* 'Burfordii Nana', | |
| | syn: *I. cornuta* 'Burfordii Compacta' | |
| | syn: *I. cornuta* 'Compacta' in part | |

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| G | *Ilex cornuta* 'Rotunda' | dwarf Chinese holly |
| SBS | *Ilex crenata* Thunb. | Japanese holly |
| SBS | *Ilex crenata* 'Compacta' | compacta holly |
| SBS | *Ilex crenata* 'Convexa' | convex holly |
| SBS | *Ilex crenata* 'Helleri' | Heller's holly |
| SBS | *Ilex crenata* 'Hetzii' | Hetz holly |
| US | *Ilex glabra* (L.) A. Gray | gallberry |
| US | *Ilex vomitoria* Aiton | yaupon holly |
| SBS | *Ilex vomitoria* 'Nana' | nana holly/dwarf yaupon |
| SBS | *Ilex vomitoria* 'Schilling's Dwarf' | Schilling's dwarf holly |
| U | *Illicium anisatum* L. | anise |
| | syn: *I. religiosum* Sieb. & Zucc. | |
| U | *Illicium floridanum* Ellis | Florida anise |
| U | *Illicium parviflorum* Michaux ex Vent. | Ocala/yellow anise |
| V | *Ipomoea* spp. | morning glory |
| US | *Ixora* spp. | ixora |
| US | *Ixora coccinea* L. 'Maui' | Maui ixora |
| US | *Ixora* 'Norah Grant' | Norah Grant ixora |
| US | *Ixora* 'Singapore' | Singapore ixora |
| V | *Jasminum dichotomum* Vahl | gold coast jasmine . |
| S | *Jasminum floridum* Bunge | showy jasmine |
| | syn: *J. subulatum* Lindl. | |
| S | *Jasminum humile* L. | Italian jasmine |
| S | *Jasminum mesnyi* Hance | primrose jasmine |
| | syn: *J. primulinum* Hemsl. | |
| S &V | Jasminum multiflorum (Burm. f.) Andr. | star/downy jasmine |
| | syn: *J. pubescens* Willd. | |
| S &V | Jasminum nitidum Skan | shiny/pinwheel jasmine |
| | syn: *J. amplexicaule* Hort. | |
| | syn: *J. ilicifollum* Hort. | |
| | syn: *J. undulatum* Hort. | |
| S | *Jasminum officinale* L. | poet's jasmine |
| S | *Jasminum sambac* (L.) Aiton | Arabian jasmine |
| S | *Jasminum volubile* Jacq. | wax jasmine |
| | syn: *J. gracile* Andr. & *J. simplicifolium* G. Forst. | |
| U | *Juniperus chinensis* L. 'Fairview' | Fairview juniper |
| U | *Juniperus chinensis* 'Kaizuka' | Hollywood/twisted juniper |
| | syn: *J. chinensis* var. *torulosa* Bailey | |
| U & SG | *Juniperus chinensis* 'Sylvestris' | Sylvester juniper |
| BS | *Juniperus conferta* Parl. | shore juniper |
| BS | *Juniperus conferta* 'Blue Pacific' | blue Pacific juniper |
| BS | *Juniperus conferta* 'Compacta' | compacta juniper |
| BS | *Junipreus conferta* 'Emerald Sea' | Emerald Sea juniper |
| BS | *Juniperus davurica* 'Expansa' | Parson's juniper |
| | syn: *J. chinensis* var. *parsonii* Hornibr. | |
| BS | *Juniperus horizontalis* Moench | prostrate juniper |
| BS | *Juniperus horizontalis* 'Bar Harbor' | Bar Harbor juniper |
| BS & G | *Juniperus horizontalis* 'Plumosa' | Andorra juniper |
| BS | *Juniperus horizontalis* 'Prince of Wales' | Prince of Wales juniper |
| BS & G | *Juniperus horizontalis* 'Wiltonii' | blue rug juniper |
| | syn: *J. horizontalis* 'Blue Rug' | |
| BS | *Juniperus x media* Van Melle | hybrid juniper |
| | syn: *J. sabina* L. & *J. sphaerica* Lindl. | |
| BS | *Juniperus x media* 'Armstrongii' | Armstrong juniper |
| G | *Juniperus x media* 'Blaauw' | blue vase juniper |
| BS | *Juniperus x media* 'Gold Coast' | Gold Coast juniper |
| G | *Juniperus x media* 'Hetzii' | Hetz juniper |
| BS | *Juniperus x media* 'Old Gold' | old gold juniper |
| S | *Juniperus x media* 'Pfitzeriana' | Pfitzer/green Pfitzer juniper |
| | syn: *J. chinensis var. pendula* Beissn. | |
| | syn: *J. chinensis var. pfitzeriana* Spath. | |

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| SBS | *Juniperus x media* 'Pfitzeriana Aurea' | gold tip Pfitzer juniper |
| SBS | *Juniperus x media* 'Pfitzeriana Compacta'<br>syn: *J. chinensis* 'Nick's Compact' | Nick's compact juniper |
| G | *Juniperus x media* 'Pfitzeriana Glauca' | silver blue juniper |
| BS | *Juniperus procumbens* (Endl.) Miq.<br>syn: *J. chinensis* 'Procumbens' | Japanese garden/ procumbent juniper |
| BS | *Juniperus procumbens* 'Nana' | dwarf procumbent juniper |
| SBS | *Juniperus sargentii* (Henry) Tak. | Sargent juniper |
| BS | *Juniperus sargentii* 'Glauca' | blue Sargent juniper |
| BS | *Juniperus sargentii* 'Viridis' | green Sargent juniper |
| US | *Juniperus virginiana* L. | eastern red-cedar |
| US | *Juniperus virginiana* 'Robusta Green' | robusta green juniper |
| S | *Juniperus virginiana* 'Sea Green' | sea green juniper |
| US | *Justicia brandegeana* Wassh. & L.B. Sm.<br>syn: *Beloperone guttata* Brandg. | shrimp plant |
| SBS | *Lantana depressa* Small | pineland trailing lantana |
| SBS & GC | *Lantana montevidensis* (Spreng.) Briq.<br>syn: *L. sellowiana* Link & Otto | dwarf trailing lantana |
| GC | *Leucanthemum x superbum* (J. Ingram) Bergmans ex Kent<br>syn: *Chrysanthemum superbum* Bergmans ex. J. Ingram | Shasta daisy |
| GC | *Leucanthemum vulgare* Lam.<br>syn: *Chrysanthemum leucanthemum* L. | oxeye daisy |
| US | *Leucophyllum frutescens* (Berl.) I.M. Johnston<br>syn: *L. texanum* Benth. | Texas-sage |
| US | *Ligustrum japonicum* Thunb. | wax/Japanese privet |
| GC | *Liriope muscari* (Decne.) L.H. Bail. | lilyturf |
| V | *Lonicera japonica* Thunb. 'Halliana' | Hall's Japanese honeysuckle |
| V | *Lonicera sempervirens* L. | coral/trumpet honeysuckle |
| V | *Macfadyena unguis-cati* (L.) A. Gentry | cat's claw |
| U | *Magnolia x soulangiana* Soul.- Bod. | saucer magnolia |
| U | *Magnolia stellata* (Sieb. & Zucc.) Maxim. | star magnolia |
| BS | *Malpighia coccigera* L. | dwarf-holly |
| BS | *Malpighia emarginata* Sesse & Moe. ex DC.<br>syn: *M. punicifolia* L. | acerola |
| US | *Malpighia glabra* L. | Barbados-cherry |
| V | *Mandevilla splendens* (Hook. f.) Woodson | pink allamanda |
| GC | *Mesembryanthemum crystallinum* L. | ice plant |
| U | *Michelia figo* (Lour.) Spreng.<br>syn: *M. fuscata* (Andrews) Wallich. | banana-shrub |
| | *Molineria recurvata*; see *Curculigo capitulata* | |
| V | *Monstera deliciosa* Liebm. | ceriman |
| US | *Myrcianthes fragrans* (Swartz) Me Vaugh *var. simpsonii* (Small) R.W. Long<br>Syn: Eugenia simpsonii (Small) Sarg. | Simpson's stopper |
| | *Myrsine floridana*; see *Rapanea punctata* | |
| | *Myrsine guianensis*; see *Rapanea punctata* | |
| U | *Myrtus communis* L. | myrtle |
| G | *Myrtus communis* 'Compacta' | dwarf myrtle |
| C | *Nageia nagi* (Thunb.) Kuntze<br>syn: *Podocarpus nagi* (Thunb.) Mak. | nagi/podocarpus nagi |
| SS & GC | *Nephrolepis exaltata* (L.) Schott | Boston fern |

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|---|---|---|
| US | *Nerium oleander* L. | oleander |
| US | *Nerium oleander* 'Dwarf' | dwarf oleander |
| SG | *Nolina recurvata* (Lem.) Hemsl. | pony tail |
| GC | *Ophiopogon japonicus* (L. f.) Ker-Gawl. | mondo-grass |
| US | *Osmanthus fragrans* Lour. | tea olive |
| GC | *Osmunda regalis* L. | royal fern |
| V | *Pandorea jasminoides* (Lindl.) K. Schum. | bower plant |
| V | *Passiflora* spp. | passion flower |
| GC | *Peperomia obtusifolia* (L.) Dietr. | baby rubber plant |
| V | *Petrea volubilis* L. | purple/queen's wreath |
| V | *Philodendron* spp. | philodendron |
| G | *Philodendron bipinnatifidum* Endl.<br>syn: *P. selloum* K. Koch | philodendron/selloum |
| US | *Photinia x fraseri* Dress | hybrid photina/red-tip photinia |
| US | *Photinia glabra* (Thunb.) Maxim. | red-leaf/red-tip photinia |
| GC | *Pilea cadierei* Gagnep. & Guill. | aluminum plant |
| GC | *Pilea microphylla* (L.) Liebm.<br>syn: *P. mucosa* Lindl. | artillery plant |
| GC | *Pilea serpyllacea* (Kunth) Liebm. 'Stoplight'<br>syn: *P. serpyllifolia* | stoplight pilea |
| G | *Pittosporum ferrugineum* Aiton | rusty pittosporum |
| G | *Pittosporum pentandrum* (Blanco) Merr. | Philippine pittosporum |
| G | *Pittosporum tobira* (Thunb.) Aiton f. | Japanese pittosporum |
| S | *Pittosporum tobira* 'Wheeler's Dwarf'<br>syn: *P. wheeleri* Hort. | Wheeler's pittosporum |
| G | *Pittosporum tobira* 'Variegata' | variegated pittosporum |
| S | *Plumbago* spp. | plumbago |
| C | *Podocarpus macrophyllus* (Thunb.) D. Don<br>syn: *P. longifolius* Parl. | Japanese-yew |
| C | *Podocarpus macrophyllus* 'Maki' | Maki-yew |
| | *Podocarpus nagi*; see *Nageia nagi* | |
| V | *Podranea ricasoliana* (Tanf.) Sprague<br>syn: *Tecoma mackersii* Will. Wats. | pink trumpet vine |
| U | *Polyscias* spp. | wild-coffee |
| U | *Polyscias x* 'Crispata' | chicken gizzard-aralia |
| U | *Polyscias filicifolia* (C. Moore ex Fourn.) L.H. Bailey | fernleaf-aralia |
| U | *Polyscias fruticosa* (L.) Harms | Ming-aralia |
| U | *Polyscias guilfoylei* (Bull) L.H. Bailey | roseleaf-aralia |
| U | *Polyscias x* 'Quercifolia' | oakleaf-aralia |
| U | *Polyscias scutellaria* (Burm. f.) Fosb. 'Balfourii'<br>syn: *P. pinnata* Forst. & Forst. f. | Balfour-aralia |
| V | *Parana paniculata* Roxb. | Christmas vine |
| V | *Pseudogynoxys chenopodioides* (Kunth) Cabr. Mexican<br>syn: Senecio confusus (DC.) Britten | flame vine |
| US | *Psychotria nervosa* Sw. | wild-coffee/false ipecac |
| V | *Pyracantha* spp. | firethorn |
| US & SG | *Pyracantha coccinea* Roem. | firethorn |
| V | *Pyrostegia venusta* (Ker-Gawl.) Miers | flame vine |
| U | *Randia aculeata* L. | white indigo-berry |
| US | Rapanea punctata (Lam.) Lundell<br>syn: *Myrsine floridana*, A. DC. &<br>*Myrsine guianensis* (Aubl.) Kuntze | myrsine |
| S | *Rhaphiolepis indica* (L.) Lindl. | Indian-hawthorn |
| S | *Rhaphiolepis umbellata* (Thunb.) Mak. | Yedda-hawthorn |
| G | *Rhododendron x* 'Coral Bells' | coral bells azalea |
| G | *Rhododendron x* 'Formosa' | Formosa azalea |
| G | *Rhododendron x* 'Red Ruffles' | red ruffles azalea |
| | *Rhoeo spathacea*; see *Tradescantia spathacea* | |

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|---|---|---|
| SG | *Rosa* spp. | rose |
| GC | *Ruellia* spp. | wild-petunia |
| SS & GC | *Rumohra adiantiformis* (Forst. f.) Ching | leatherleaf fern |
| S | *Russelia equisetiformis* Schlecht. & Cham. | firecracker/fountain bush |
| GC | *Sansevieria trifasciata* Frain | snake plant/ mother-in-law's tongue |
| G | *Scaevola* spp. | scaevola |
| U | *Schefflera actinophylla* (Endl.) Harms syn: *Brassaia actinophylla* Endl. | Queensland umbrella tree/ schefflera |
| S | *Schefflera arboricola* (Hayata) Merr. | dwarf schefflera |
| GC | *Serenoa repens* Small | saw palmetto |
| US | *Severinia buxifolia* (Poir.) Ten. | box-thorn/Chinese box-orange |
| US | *Severinia buxifolia* 'Nana' | dwarf box-thorn |
| U | *Sophora tomentosa* L. | necklace pod |
| GC | *Spiraea cantoniensis* Lour. | Reeves spiraea |
| V | *Stephanotis floribunda* (R. Br.) Brongn. | Madagascar stephanotis |
| US | *Strelitzia nicolai* Reg. & Korn. | white bird of paradise |
| US | *Strelitzia reginae* Banks ex Dryand | bird of paradise |
| V | *Syngonium podophyllum* Schott | nephthytis |
| US & SG | *Syzygium paniculatum* Gaertn. syn: *Eugenia myrtifolia* Sims | brush-cherry |
| U | *Syzygium paniculatum* 'Compacta' syn: *Eugenia compacta* Hort. | compact brush-cherry |
| US | *Tabernaemontana divaricata* (L.) R. Br. ex. Roem. & Schult. | crepe-jasmine |
| V | *Tecomaria capensis* (Thunb.) Spach | Cape honeysuckle |
| US | *Tetrazygia bicolor* (Mill.) Cogn. *Thryallis glauca*; see *Galphimia glauca* | Florida tetrazygia |
| G | *Thuja occidentalis* L. 'Globosa' | globe arborvitae |
| U | *Thunbergia erecta* (Benth.) T. Anders. | king's mantle |
| V | *Thunbergia fragrans* Roxb. | sweet clock vine |
| V | *Thunbergia grandiflora* (Rottl.) Roxb. | Bengal clock vine |
| US | *Tibouchina* spp. | glory bush |
| V | *Trachelospermum jasminoides* (Lindl.) Lem. | Confederate jasmine |
| GC | *Tradescantia pallida* (Rose) D. Hunt syn: *Setcreasea purpurea* Rose | purple queen |
| GC | *Tradescantia zebrina* hort. ex Bosse | wandering Jew |
| S | *Triphasia trifolia* (Burm. f.) P. Wils. | limeberry |
| GC | *Verbena* spp. | verbena |
| US | *Viburnum obovatum* Walter | Walter's viburnum/black haw |
| US | *Viburnum odoratissimum* Ker-Gawl. | sweet viburnum |
| US | *Viburnum rufidulum* Raf. | rusty haw/southern black haw |
| US | *Viburnum suspensum* Lindl. | sandankwa viburnum |
| US | *Viburnum tinus* L. | laurustinus |
| US | *Viburnum tinus* 'Compactum' | compact laurustinus |
| US | *Viburnum tinus* 'Spring Bouquet' | spring bouquet laurustinus |
| V | *Wisteria sinensis* (Sims) Sweet | Chinese wisteria |
| SS | *Yucca aloifolia* L. | Spanish bayonet |
| SS | *Yucca elephantipes* Regel syn: *Y. gigantea* Bak. | soft tip yucca/spineless yucca |
| SS | *Yucca filamentosa* L. | Adam's needle |
| SS | *Yucca gloriosa* L. | Spanish dagger |
| SS | *Yucca smalliana* Fern. | bear-grass |
| GC | *Zamia furfuracea* Ait. | cardboard-palm |
| GC | *Zamia pumila* L. syn: *Z. floridana* A. DC. | coontie |
| GC | *Zamia skinneri* Warsc. | pleated zamia |

## INDEX OF SHRUBS, GROUNDCOVERS AND VINES MOST GENERALLY SOLD BY FLORIDA NURSERIES WITH THE TYPE UNDER WHICH THEY ARE TO BE GRADED

**BS** - Broad Spreading **SBS** - Semi-broad Spreading

**S** - Spreading **G** - Globose **US** - Upright Spreading

**U** - Upright **C** - Columnar **GC** - Groundcover

**SG** - Special Grade **SS** - Specific Specifications **V** - Vines

| TYPE | COMMON NAME | SCIENTIFIC NAME |
|---|---|---|
| US | abelia, glossy | *Abelia x grandiflora* |
| BS | acerola | *Malpighia emarginata* |
| SS | Adam's needle | *Yucca filamentosa* |
| US | African fern-pine | *Afrocarpus gracilior* |
| SS | agave, giant false- | *Furcraea foetida* |
| S | allamanda, bush | *Allamanda nerifolia* |
| V | allamanda, pink | *Mandevilla splendens* |
| US | allamanda, purple | *Allamanda violacea* |
| V | allamanda, yellow | *Allamanda cathartica* |
| SG | aloe | *Aloe* spp. |
| GC | aluminum plant | *Pilea cadierei* |
| BS & GC | Andorra juniper | *Juniperus horizontal is* 'Plumosa' |
| U | anise, Florida | *Illicium floridanum* |
| U | anise, Ocala/yellow | *Illicium parviflorum* |
| U | anise, star | *Illicium anisatum* |
| US | aralia | *Aralia* spp. |
| U | aralia, balfour- | *Polyscias scutellaria* |
| U | aralia, chicken gizzard- | *Polyscias* x 'Crispata' |
| U | aralia, fernleaf- | *Polyscias filicifolia* |
| U | aralia, Ming- | *Polyscias fruticosa* |
| U | aralia, roseleaf- | *Polyscias guilfoylei* |
| U | aralia, oakleaf- | *Polyscias* x 'Quercifolia' |
| G | arborvitae, globe | *Thuja occidentalis* 'Globosa' |
| GC | artillery plant | *Pilea microphylla* |
| SBS & GC | asparagus-fern | *Asparagus* spp. |
| G | azalea, coral bells | *Rhododendron* x 'Coral Bells ' |
| G | azalea, Formosa | *Rhododendron* x 'Formosa |
| G | azalea, red ruffles | *Rhododendron* x 'Red Ruffles' |
| GC | baby rubber plant | *Peperomia obtusifolia* |
| U | banana-shrub | *Michelia figo* |
| US | Barbados-cherry | *Malpighia glabra* |
| BS | barberry, Japanese | *Berberis thunbergii* |
| V | bauhinia, red | *Bauhinia galpinii* |
| SS | bayonet, Spanish | *Yucca aloifolia* |
| SS | bear-grass | *Yucca smalliana* |
| US | beautyberry | *Callicarpa americana* |
| US | bird of paradise | *Strelitzia reginae* |
| US | bird of paradise, white | *Strelitzia nicolai* |
| US | black haw | *Viburnum obovatum* |
| US | black haw, southern | *Viburnum rifidulum* |
| V | bleeding heart | *Clerodendrum thomsoniae* |
| GC | blue daze | *Evolvulus glomeratus* |
| BS, GC, US & V | bougainvillea | *Bougainvillea* spp. |

| | | |
|---|---|---|
| U | bottlebrush, erect | *Callistemon rigidus* |
| US | bottlebrush, lemon | *Callistemon citrinus* |
| U | bottlebrush, red cluster | *Callis ternan* 'Red Cluster' |
| V | bower plant | *Pandorea jasminoides* |
| US | box-orange, Chinese | *Severinia buxifolia* |
| US | box-thorn | *Severinia buxifolia* |
| US | box-thorn, dwarf | *Severinia buxifolia* 'Nana' |
| US | boxwood | *Bunts* spp. |
| US | brush-cherry | *Syzygium paniculatum* |
| U | brush-cherry, compact | *Syzygium paniculatum* 'Compacta' |
| GC | bugleweed | *Ajuga reptans* |
| US | butterfly bush | *Buddleia* spp. |
| GC | buttonbush | *Cephalanthus occidentalis* |
| US | buttonwood | *Conocarpus erectus* |
| US | buttonwood, silver | *Conocarpus erectus* var. *sericeus* |
| US | caesalpinia | *Caesalpinia* spp. |
| US | calamondin | *X Citrofortunella microcarpa* |
| U | calyptranthes | *Calyptranthes* spp. |
| US | camellia, common | *Camellia japonica* |
| US & SG | Cape-jasmine | *Gardenia augusta* |
| US & SG | Cape-yellowwood | *Afrocarpus falcata* |
| G OR C | caper-tree, Jamaican | *Capparis cynophallophora* |
| GC | cardboard | *Zamia furfuracea* |
| V | Carolina yellow jessamine | *Gelsemum sempervirens* |
| BS | cassia | *Cassia* spp. |
| GC | cast iron plant | *Aspidistra elatior* |
| V | cat's claw | *Macfadyena unguis-cata* |
| US | cedar, eastern red- | *Juniperus virginiana* |
| SS | century plant | *Agave* spp. |
| V | ceriman | *Monstera deliciosa* |
| US | cherry, Barbados- | *Malpighia glabra* |
| US & SG | cherry, brush- | *Syzygium paniculatum* |
| U | cherry, compact brush- | *Syzygium paniculatum* 'Compacta' |
| US | cherry, Surinam- | *Eugenia uniflora* |
| US & SG | China-rose/Chinese hibiscus | *Hibiscus rosa-sinensis* |
| V | Christmas vine | *Parana paniculata* |
| GC | chrysanthemum | *Dendranthema x grandiflorum* |
| US | cleyera | *Cleyera japonica* |
| V | clock vine, Bengal | *Thunbergia grandiflora* |
| V | clock vine, sweet | *Thunbergia fragrans* |
| US | cocoplum | *Chrysobalanus icaco* |
| GC | coontie | *Zamia pumila* |
| U | copper-leaf | *Acalypha wilkesiana* |
| US | crepe-jasmine | *Tabernaemontana divaricata* |
| GC | crossandra | *Crossandra infundibuliformis* |
| US | croton | *Codiaeum variegatum* |
| S | crown-of-thorns | *Euphorbia milii* var. *splendens* |
| SS | dagger, Spanish | *Yucca gloriosa* |
| G | daisy, California | *Gamolepis chrysanthemoides* |
| GC | daisy, marguerite | *Argyranthemum frutescens* |
| GC | daisy, oxeye | *Leucanthemum vulgare* |
| GC | daisy, seaside | *Erigeron glaucus* |
| GC | daisy, Shasta | *Leucanthemum x superbum* |
| GC | day lily | *Hemerocallis* spp. |
| G | dewdrop, golden | *Duranta erecta* |
| s | dragon tree | *Dracaena* spp. |
| BS | dwarf-holly | *Malpighia coccigera* |
| GC | elephant ear | *Alocasia* spp. |
| u | eugenia, African | *Eugenia coronata* |
| u | eugenia, eucalyptus-leaf | *Eugenia eucalyptoides* |

| | | |
|---|---|---|
| SS | false-agave, giant | *Furcraea foetida* |
| US | false ipecac | *Psychotria nervosa* |
| SBS & G | false-heather | *Cuphea hyssopifolia* |
| US | fatsia | *Fatsia japonica* |
| SS & GC | fern, Boston | *Nephrolepis exaltata* |
| SS & GC | fern, Japanese hollyfern, | *Cyrtomium falcatum* |
| GC | leather | *Acrostichum daneifolium* |
| SS & GC | fern, leatherleaf | *Rumohra adiantiformis* |
| GC | fern, miniature tree | *Blechnum gibbum* |
| US | fern-pine, African | *Afrocarpus gracilior* |
| GC | fern, royal | *Osmunda regalis* |
| GC | fern, swamp | *Blechnum serrulatum* |
| US | fiddlewood, Florida | *Citharexylum fruticosum* |
| U | fig | *Ficus* spp. |
| V | fig, creeping | *Ficus pumila* |
| US | fire bush | *Hamelia patens* |
| S | firecracker | *Russelia equisetiformis* |
| GC | firecracker cactus | *Cleistocactus* spp. |
| V | fire thorn | *Pyracantha* spp. |
| US | Florida-privet | *Forestiera segregata* |
| V | flame vine | *Pyrostegia venusta* |
| V | flame vine, Mexican | *Pseudogynoxys chenopodioides* |
| S | fountain bush | *Russelia equisetiformis* |
| US | gallberry | *Ilex glabra* |
| V | garlic vine | *Cydista aequinoctialis* |
| US | ginger, shell | *Alpinia* spp. |
| G | globe arborvitae | *Thuja occidental is* 'Globosa' |
| US | glory bush | *Tibouchina* spp. |
| US | gold dust plant | *Aucuba japonica* |
| G | golden dewdrop | *Duranta erecta* |
| SS | grand crinum | *Crinum asiaticum* |
| US | grape, seagrass, | *Coccoloba uvifera* |
| BS, SBS, & S | Green Island ficus | *Ficus microcarpa* |
| SS | beargrass, | *Yucca smalliana* |
| GC | palmguava, | *Curculigo capitulata* |
| G | pineapple | *Acca sellowiana* |
| US | haw, black | *Viburnum obovatum* |
| US | haw, rusty/southern black | *Viburnum rufidulum* |
| S | hawthorn, Indian | *Rhaphiolepis indica* |
| S | hawthorn, Yedda- | *Rhaphiolepis umbellata* |
| SBS | heather, false | *Cuphea hyssopifolia* |
| SS | hemp, Mauritius | *Furcraea foetida* |
| US | hibiscus | *Hibiscus* spp. |
| US & SG | hibiscus, China-rose/Chinese | *Hibiscus rosa-sinensis* |
| G | holly, Burford | *Ilex corn uta* 'Burfordii' |
| G | holly, Chinese | *Ilex cornuta* |
| SBS | holly, compacta | *Ilex crenata* 'Compacta' |
| SBS | holly, convex | *Ilex crenata* 'Convexa' |
| U | holly, Dahoon | *Ilex cassine* |
| BS | holly, dwarf | *Malpighia coccigera* |
| G | holly, dwarf Burford | *Ilex corn uta* 'Dwarf Burford' |
| SBS | holly, dwarf yaupon | *Ilex vomitoria* 'Nana' |
| U | holly, East Palatka | *Ilex x attenuata* 'East Palatka' |
| SBS | holly, Heller's | *Ilex crenata* 'Helleri' |
| SBS | holly, Hetz | *Ilex crenata* 'Hetzii' |
| U | holly, hybrid | *Ilex x attenuata* |
| G | holly, Japanese | *Ilex crenata* |
| SBS | holly,nana | *Ilex vomitoria* 'Nana' |
| U | holly, Savannah | *Ilex x attenuata* 'Savannah' |
| SBS | holly, Schilling's dwarf | *Ilex x vomitoria* 'Schilling's Dwarf' |
| US | holly, yaupon | *Ilex vomitoria* |
| SS & GC | holly-fern, Japanese | *Cyrtomium falcatum* |
| V | honeysuckle, Cape | *Tecomaria capensis* |

| | | |
|---|---|---|
| V | honeysuckle, Hall's Japanese | *Lonicera japonica* 'Halliana' |
| V | honeysuckle, trumpet | *Lonicera sempervirens* |
| V | hunter's robe | *Epipremnum aureum* |
| G | hydrangea, garden | *Hydrangea macrophylla* |
| US | hydrangea, oakleaf | *Hydrangea quericfolia* |
| GC | ice plant | *Mesembryanthemum crystallimum* |
| S | Indian-hawthorn | *Rhaphiolepis indica* |
| U | indigo-berry, white | *Randia aculeata* |
| US | ipecac, false | *Pschotria nervosa* |
| US | ixora | *Ixora* spp. |
| US | ixora, Maui | *Ixora coccinea* 'Maui' |
| US | ixora, Norah Grant | *Ixora* 'Norah Grant' |
| US | ixora, Singapore | *Ixora* 'Singapore' |
| V | ivy, Algerian | *Hedera canariensis* |
| GC & V | ivy, English | *Hedera helix* |
| GC | Jacob's / Joseph's Coat | *Alternanthera ficoidea* |
| S | jasmine, Arabian | *Jasminum sambac* |
| US & SG | jasmine, Cape | *Gardenia augusta* |
| V | jasmine, Confederate | *Trachelospermum jasminoides* |
| US | jasmine, crepe | *Tabernaemontana divaricata* |
| S&V | jasmine, downy/star | *Jasminum multiflorum* |
| V | jasmine, Gold Coast | *Jasminum dichotomum* |
| S | jasmine, Italian | *Jasminum humi/e* |
| S&V | jasmine, pinwheel/shiny | *Jasminum nitidum* |
| S | jasmine, poet's | *Jasminum officinale* |
| S | jasmine, primrose | *Jasminum mesnyi* |
| S | jasmine, showy | *Jasminum floridum* |
| S | jasmine, wax | *Jasminum volubile* |
| V | jessamine, Carolina yellow | *Gelsemium sempervirens* |
| US | jessamine, night blooming | *Cestrum nocturnum* |
| BS & G | juniper, Andorra | *Juniperus horizontal is* 'Plumosa' |
| BS | juniper, Armstrong | *Juniperus x media* 'Armstrongii' |
| BS | juniper, Bar Harbour | *Juniperus horizontalis* 'Bar Harbor' |
| BS | juniper, blue Pacific | *Juniperus conferta* 'Blue Pacific' |
| BS & G | juniper, blue rug | *Juniperus horizontal is* 'Wiltonii' |
| BS | juniper, blue sargent | *Juniperus sargentii.* 'Glauca' |
| G | juniper, blue vase | *Juniperus x media* 'Blaauw' |
| BS | juniper, dwarf procumbent | *Juniperus procumbens* 'Nana' |
| BS | juniper, compacta | *Juniperus conferta* 'Compacta' |
| BS | juniper, emerald sea | *Juniperus conferta* 'Emerald Sea' |
| U | juniper, Fairview | *Juniperus chinensis* 'Fairview' |
| BS | juniper, Gold Coast | *Juniperus x media* 'Gold Coast' |
| SBS | juniper, gold tip Pfitzer | *Juniperus x media* 'Pfitzeriana Aurea' |
| S | juniper, green Pfitzer | *Juniperus x media* 'Pfitzeriana' |
| BS | juniper, green sargent | *Juniperus sargentii* 'Viridis' |
| G | juniper, Hetz | *Juniperus x media* 'Hetzii' |
| U | juniper, hollywood | *Juniperus chinensis* 'Kaizuka' |
| BS | juniper, hybrid | *Juniperus x media* |
| BS | juniper, Japanese garden | *Juniperus procumbens* |
| SBS | juniper, Nick's compact | *Juniperus x media* 'Pfitzeriana compacta' |
| BS | juniper, old gold | *Juniperus x media* 'Old Gold' |
| BS | juniper, Parson's | *Juniperus davurica* 'Expansa' |
| S | juniper, Pfitzer | *Juniperus x media* 'Pfitzeriana' |
| BS | juniper, Prince of Wales | *Juniperus horizontalis* 'Prince of Wales' |
| BS | juniper, procumbent | *Juniperus procumbens* |
| BS | Juniper, prostrate | *Juniperus horizontalis* |
| US | Juniper, robusta green | *Juniperus virginiana* 'Robusta Green' |

| | | |
|---|---|---|
| SBS | juniper, sargent | *Juniperus sargentii* |
| S | juniper, sea green | *Juniperus virginiana* 'Sea Green' |
| BS | juniper, shore | *Juniperus conferta* |
| G | juniper, silver blue | *Juniperus x media* 'Pfitzeriana Glauca' |
| U & SG | juniper, Sylvester | *Juniperus chinensis* 'Sylvestris' |
| U | juniper, twisted | *Juniperus chinensis* 'Kaizuka' |
| U | king's mantle | *Thunbergia erecta* |
| G | Christmas cheer azalea | *Rhododendron* 'Christmas Cheer' |
| US | laurustinus | *Viburnum tinus* |
| US | laurustinus, compact | *Viburnum tinus* 'Compactum' |
| US | laurustinus, spring bouquet | *Viburnum tinus* 'Spring Bouquet' |
| US | lignum-vitae | *Guaiacum sanctum* |
| SS | lily, Florida swamp | *Crinum americanum* |
| SS | lily, giant string | *Crinum augustum* |
| SS | lily, poison bulb, grand crinum | *Crinum asiaticum* |
| SS | lily, string | *Crinum americanum* |
| GC | lilyturf | *Liriope muscari* |
| GC | lily-of-the-Nile | *Agapanthus africanus* |
| S | lime berry | *Triphasia trifolia* |
| U | magnolia, saucer | *Magnolia x soulangiana* |
| U | magnolia, star | *Magnolia stellata* |
| GC | marguerite daisy | *Argyranthemum frutescens* |
| SS | Mauritius-hemp | *Furcraea foetida* |
| SBS & GC | Mexican-heather | *Cuphea hyssopifolia* |
| GC | mondo-grass | *Ophiopogon japonicus* |
| V | morning glory | *Ipomoea* spp. |
| GC | Moses-in-the-cradle | *Tradescantia spathacea* |
| GC | mother-in-law's tongue | *Sansevieria trifasciata* |
| US | myrsine | *Rapanea punctata* |
| U | myrtle | *Myrtus communis* |
| G | myrtle, dwarf | *Myrtus communis* 'Compacta' |
| C | nagi | *Nageia nagi* |
| BS | natal-plum | *Carissa macrocarpa* |
| BS | natal-plum, Albert | *Carissa macrocarpa* 'Albert' |
| BS | natal-plum, boxwood beauty | *Carissa macrocarpa* 'Boxwood Beauty' |
| BS | natal-plum, emerald blanket | *Carissa macrocarpa* 'Emerald Blanket' |
| U | necklace pod | *Sophora tomentosa* |
| SS | needle, Adam's | *Yucca filamentosa* |
| V | nephthytis | *Syngonium podophyllum* |
| US | night blooming jessamine | *Cestrum nocturnum* |
| US | oleander | *Nerium oleander* |
| US | oleander, dwarf | *Nerium oleander* 'Dwarf' |
| US | olive, tea | *Osmanthus fragrans* |
| GC | palmetto, saw | *Serenoa repens* |
| GC | palm-grass | *Curculigo capitulata* |
| V | passion flower | *Passiflora* spp. |
| GC | Peter Pan | *Agapanthus africanus* 'Peter Pan' |
| GC | petunia, wild | *Ruellia* spp. |
| US | Philippine-violet | *Barleria cristata* |
| V | philodendron | *Philodendron* spp. |
| G | philodendron | *Philodendron bipinnatifidum* |
| US | photinia, hybrid/red tip | *Photinia x fraseri* |

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|---|---|---|
| US | photinia, red-leaf/red-tip | *Photinia glabra* |
| GC | pilea, stoplight | *Pilea serpyllifolia* 'Stoplight' |
| G | pineapple-guava | *Acca sellowiana* |
| G | pittosporum, Japanese | *Pittosporum tobira* |
| G | pittosporum, Philippine | *Pittosporum pentandrum* |
| G | pittosporum, rusty | *Pittosporum ferrugineum* |
| G | pittosporum, variegated | *Pittosporum tobira* 'Variegata' |
| S | pittosporum, Wheeler's | *Pittosporum tobira* 'Wheeler's Dwarf' |
| U | plantain, wild-plum, natal; see natal-plum | *Heliconia* spp. |
| S | plumbago | *Plumbago* spp. |
| C | podocarpus, Japanese yew | *Podocarpus macrophyllus* |
| C | podocarpus, Maki-yew | *Podocarpus macrophyllus 'Maki'* |
| C | podocarpus, nagi | *Nageia nagi* |
| US | podocarpus, weeping | *Afrocarpus gracilior* |
| SS | poison bulb | *Crinum asiaticum* |
| SG | pony tail | *Nolina recurvata* |
| US | powderpuff | *Calliandra* spp. |
| US | privet, Florida- | *Forestiera segregata* |
| US | privet, Japanese/wax | *Ligustrum japonicum* |
| GC | purple queen | *Tradescantia pallida* |
| V | purple wreath | *Petrea volubilis* |
| V | queen's wreath | *Petrea volubilis* |
| US | red-cedar, eastern | *Juniperus virginiana* |
| SG | rose | *Rosa* spp. |
| US | rusty haw | *Viburnum rufidulum* |
| US | sage, Texas- | *Leucophyllum frutescens* |
| US | Sandankwa viburnum | *Viburnum suspensum* |
| US | sakaki | *Cleyera japonica* |
| US | sasanqua | *Camellia sasanqua* |
| G | scaevola | *Scaevola* spp. |
| US | scarlet bush | *Hamelia patens* |
| U | schefflera | *Schefflera actinophylla* |
| S | schefflera, dwarf | *Schefflera arboricola* |
| US | sea grape | *Coccoloba uvifera* |
| G | selloum | *Philodendron bipinnatifidum* |
| G | shower-of-gold | *Galphimia glauca* |
| US | shrimp plant | *Justicia brandegeana* |
| V | sickle thorn | *Asparagus falcatus* |
| S | silverthorn | *Elaeagnus pungens* |
| US | snail seed | *Cocculus laurifolius* |
| GC | snake plant | *Sansevieria trifasciata* |
| SS | Spanish bayonet | *Yucca aloifolia* |
| SS | Spanish dagger | *Yucca gloriosa* |
| GC | spider plant | *Chlorophytum comosum* |
| SBS & GC | sprengeri | *Asparagus densiflorus* |
| GC | spiraea, Reeves | *Spiraea cantoniensis* |
| V | star flower | *Grewia occidentalis* |
| V | star of India | *Grewia caffra* |
| V | stephanotis, Madagascar | *Stephanotis floribunda* |
| U | stopper, redberry | *Eugenia confusa* |
| US | stopper, Simpson's | *Myrcianthes fragrans* var. *simpsonii* |
| U | stopper, Spanish | *Eugenia foetida* |
| US | strawberry-bush | *Euonymus* spp. |
| GC | tail flower | *Anthurium* spp. |

| | | |
|---|---|---|
| US | tetrazygia, Florida | *Tetrazygia bicolor* |
| US | Texas-sage | *Leucophyllum frutescens* |
| G | thryallis | *Galphimia glauca* |
| US | ti | *Cordyline terminalis* |
| GC | tickseed, nana | *Coreopsis auriculata* |
| V | trumpet, herald's | *Beaumontia grandiflora* |
| V | trumpet, painted | *Clytostoma callistegioides* |
| V | trumpet vine, pink | *Podranea ricasoliana* |
| U | umbrella tree, Queensland | *Schefflera actinophylla* |
| U | varnish leaf | *Dodonaea viscosa* |
| GC | verbena | *Verbena* spp. |
| US | viburnum, Sandankwa | *Viburnum suspensum* |
| US | viburnum, sweet | *Viburnum odoratissimum* |
| US | viburnum, Walter's | *Viburnum obovatum* |
| US | violet, Phillippine- | *Barleria cristata* |
| GC | wandering Jew | *Tradescantia zebrina* |
| GC | wedelia | *Complaya trilobata* |
| GC | wild-petunia | *Ruellia* spp. |
| U | wild-plantain | *Heliconia* spp. |
| U | wild-coffee | *Polyscias* spp. |
| US | wild-coffee | *Psychotria nervosa* |
| V | wisteria, Chinese | *Wisteria sinensis* |
| V | wreath, purple/queen's | *Petrea volubilis* |
| S | Yedda-hawthorn | *Rhaphiolepis umbellata* |
| US | yellowwood, Cape | *Afrocarpus Jalcatus* |
| C | yew, Japanese- | *Podocarpus macrophyllus* |
| C | yew, Maki- | *Podocarpus macrophyllus* 'Maki' |
| SS | yucca, soft tip/spineless | *Yucca elephantipes* |
| GC | zamia, pleated | *Zamia skinneri* |

## GLOSSARY OF TERMS

## SHRUBS, GROUNDCOVERS AND VINES

**Air layer** (Chinese marcottage, marcott or mossing): A well-rooted cutting which was rooted on the stem of the parent plant by using a damp medium.

**Average height:** The distance measured in feet and/ or inches from the soil line to the average top of the plant.

**Average spread:** The distance measured in feet and/ or inches across the average diameter of the plant.

**Balled and burlapped (B&B):** A soil ball containing roots of the plant wrapped and secured in natural or treated burlap, and/ or wire.

**Bare-root:** Plants, with roots free of soil.

**Branching, Uniform:** Branches or canes should encircle the main stem or trunk to produce a full-shaped plant. If branching is not uniform, the plant can be one-sided, fan-shaped, contain depressed areas and be undesirable in shape.

**Caliper:** Minimum trunk diameter at a predetermined point of measurement.

**Canes:** A primary stem which starts from the ground or close to the ground at a point no higher than ¼ the height of the plant.

**Chlorosis:** A lightness or bleaching (typically yellow) of green color in the foliage unlike the normal color. This indicates that the plant has not been maintained in the best of health.

**Collected:** Native palms, trees or shrubs not nursery-grown but dug and transplanted from the wild, such as oaks, pines, *Sabal palmetto, Illicium*, etc., must be invoiced or labeled 'COLLECTED' with the exception of *Sabal palmetto* palms, which will be assumed to be collected if they are a larger size than would normally grow in a 5-gallon container.

**Crown:** Main point of branching.

**Cutting:** An unrooted piece of a plant for vegetative propagation.

**Dense foliage:** Multitudinous breaks making a close, compact foliage through which light is not discernible, or barely so. Produced by consistent pruning and proper spacing, together with exceptional cultural practice.

**Dripline:** The outer perimeter of the top of a tree or plant.

**Espalier:** Any plant that is pruned and shaped against a trellis or wall in a formal or unusual manner different from the normal growth of that species.

**Excessively root bound:** When the volume of roots has replaced most of the soil, and when the mass has grown to the extent that large roots break out of the container, or the plant stops growing.

**Extreme succulence:** Any plant, palm or tree whose growth is soft or tender and has been excessively pushed by extreme amounts of water and fertilizer to the extent that it will wilt and suffer severe shock when transplanted.

**Good leaves:** Have normal size, color and texture characteristic of the species. May show very minor pest damage on a few individual leaves.

**Grade:** A descriptive index of the quality of a nursery plant.

**Light foliage:** Approximately 50% compactness of foliage with thin, sparse branching and, as a result, more light and open foliage than medium.

**Liner:** Any rooted cutting, air layer or seedling plant which has a firmly established root system but which is still small and immature.

**Medium foliage:** Approximately 75% or more of the amount of compactness as dense foliage. Can be seen through readily.

**Minimum average spread:** The minimum acceptable width requirement established for each plant grade; usually measured in feet.

**Perfect leaves:** Show the deep color characteristic of the variety with no damage or imperfection of any kind on leaves, leaflets or petioles.

**Pests:** Includes diseases, either pathological or physiological, viruses, bacteria, fungi, insects, snails, mites, nematodes, land crabs, terrapins, animals, rodents, reptiles and parasitic plants.

**Potted or container-grown:** A plant grown in a container such as a pot or can.

**Rooted cutting:** A cutting which has calloused and produced roots. Applies equally to cuttings rooted in a propagation bed or in individual containers.

**Standards:** The qualities and characteristics which a nursery plant must attain for a grade.

**Sturdily established in ball:** The soil must be heavy enough or contain sufficient moisture before digging to hold together without any breaking, cracking or crumbling and be securely pinned, tied or wired tight so the main trunk or stem cannot be loosened from the soil.

**Sturdily established in container:** When the main trunk or stem has developed sufficient roots to extensively penetrate the soil and become incorporated into it.

**Time of delivery:** When the seller releases control of a plant(s) to the buyer regardless of location.

**Total height:** The distance from the ground to the top most portion of the plant.

**Total spread:** The distance measured in feet and/or inches across the greatest diameter of the plant.

## REFERENCES FOR SHRUBS, GROUNDCOVERS AND VINES


Broschat, Timothy K. and Alan W. Meerow. 1991. Betrock's reference guide to Florida landscape plants. Betrock Information Systems, Inc. 427 pp.

Brummitt, R. K. and C. E. Powell. 1992. Authors of plant names. Royal Botanic Gardens, Kew, Great Britain. 732 pp.

Burch, Derek, Daniel B. Ward, and David W. Hall. 1988. Checklist of the woody cultivated plants of Florida. Extension Sale Publication SP-33. Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL. 80 pp.

Correll, Donovan S. and Helen B. Correll. 1982. Flora of the Bahama Archipelago. J. Cramer, Hirschberg, Germany. 1692 pp.

Everett, Thomas H. 1982. The New York Botanical Garden illustrated encyclopedia of horticulture, 10 vols. Garland Publishing, Inc., New York, NY. 3596 pp.

Foote, Leonard E. and Samuel B. Jones, Jr. 1989. Native shrubs and woody vines of the southeast, landscaping uses and identification. Timber Press, Portland, OR. 199 pp.

Galle, Fred C. 1985. Azaleas. Timber Press, Portland, OR. 486 pp.

Godfrey, Robert K. 1988. Trees, shrubs and woody vines of northern Florida and adjacent Georgia and Alabama. University of Georgia Press, Athens, GA. 734 pp.

Hansell, Dorothy E. (ed.) 1970. Handbook of hollies, a special issue on Ilex. The American Horticultural Magazine. 49 (4): 150-330.

Huxley, Anthony (ed.) 1992. The new Royal Horticultural Society dictionary of gardening, 4 vols. The Stockton Press, New York, NY. 3353 pp.

Kartesz, John T. 1994. A synonymized checklist of the vascular flora of the United States, Canada, and Greenland. 2nd edition. Timber Press, Portland, OR. 2 vols. 622 & 816 pp.

Krussman, Gerd. 1985. Manual of cultivated conifers. Timber Press, Portland, OR. 361 pp.

Mabberley, D. J. 1989. The plant-book. Cambridge University Press, Cambridge. 706 pp.

Staff of Liberty Hyde Bailey Hortorium. 1976. Hortus third. MacMillan Publishing Co., Inc., New York, NY. 1290 pp.

United States Department of Agriculture, Soil Conservation Service. 1982. National list of scientific plant names, 2 vols. SCS-TP-159. 416 + 438 pp.

van Geldren, D. M. 1986. Conifers. Photographs by J. R. P. van Hoey Smith. Royal Boskoop Horticultural Society. Timber Press, Portland, OR. 375 pp.

# WETLAND PLANTS

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# TABLE OF CONTENTS

## WETLAND PLANTS

# GRADING WETLAND PLANTS

## INTRODUCTION

Wetland plants are most commonly used for wetland creation (mitigation) and aquascaping. The species listed in this chapter are representative of this vegetation category. The list is not intended to be complete. Other species not listed herein may be included in this category as appropriate.

Standards for wetland trees are contained within this manual beginning on page 3 of the tree section, except for mangroves listed in this section. Grades established for trees (Florida Fancy, Florida No. 1, Florida No. 2) do not apply when these trees are used for mitigation purposes. Downgrading factors listed in this section apply to trees, as well as other wetland plants, when these plants are used for mitigation or aquascaping.

The collection, possession, cultivation and transportation of wetland plant species may require a permit from the Florida Department of Agriculture and Consumer Services.

## STANDARDS FOR WETLAND PLANTS

1. Specimens shall be free of other plants considered as nuisance or exotic species. Examples include, but are not limited to, Brazilian pepper (*Schinus terebinthifolius*), melaleuca (*Melaleuca quinquenervia*), torpedo grass (*Panicum repens*), hydrilla (*Hydrilla verticillata*), primrose willow (*Ludwigia peruviana*) and cattail (*Typha* spp.).

2. Non-containerized specimens (includes plugs or bare root specimens, either nursery grown or wild harvested):
   a. Shall exhibit a healthy, well-distributed root structure which extensively penetrates the soil such that at least 75% of the soil mass remains intact. Not applicable to bare root specimens (see Fig. 2a, p. 6).
   b. Shall exhibit sufficient top growth to ensure viability at the specified water depth or location. Seasonal dieback of foliage is expected and acceptable in collected specimens.

3. Containerized specimens:
   a. Shall exhibit a healthy, well-distributed root structure which extensively penetrates the soil such that at least 90% of the soil mass remains intact (see Fig. 3a & b, p. 6).
   b. Shall exhibit vigorous top growth with a base diameter at least 50% of the diameter of the container (see Fig. 3c, p. 6).

4. Specimens in containers 4 inches diameter or less must be grown in those containers for a minimum of 30 days. Specimens in containers greater than 4 inches diameter must be grown in those containers for a minimum of 45 days.

5. The specimen is unacceptable if one of the following conditions are true:
   a. More than 25% of the total foliage damaged by insects or mechanical injury (see Fig. 4a, p. 7).
   b. Too few main lateral or feeder roots (see Fig. 4b, p. 7).
   c. Roots damaged by digging cuts or exposure to light, air or temperature (see Fig. 4c, p. 7).
   d. Rootbound conditions (see Fig. 4d, p. 7).

## STANDARDS FOR RED[1] AND BLACK[2] MANGROVES

| | Seedling | Black 1 gallon | Red 1 gallon | Black 3 gallon | Red 3 gallon |
|---|---|---|---|---|---|
| Height | * | 14” | 20” | 24” | 36” |
| Caliper (min) | * | ¼” | ½” | ½” | ¾” |
| Crown (min) | * | 4” | 6” | 18” | 24” |
| Roots | * | 6” branched | 6” | 12” branched | 12” |
| Time in container (min) | * | 6 months | 6 months | 9 months | 9 months |

1 . *Rhizophora mangle* L.
2. *Avicennia germinans* (L.) L.
* Plants which fail to meet minimum criteria for 1 gallon standard are considered seedlings.

**Figure 1.**

red mangrove
*Rhizophora mangle* L.

black mangrove
*Avicennia germinans* (L.) L.

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### WETLAND TREES (excluding red and black mangroves)

| | Seedling | 1 gallon | 3 gallon | 7 gallon |
|---|---|---|---|---|
| Height | >18” | 18 - 36” | 40 - 72” | 60 - 84” |
| Caliper (min) | >¼” | ¼” | ⅜” | ¾” |
| Roots | Fully rooted in pot but not rootbound | | | |
| Crown (min) | >4” | 4” | 12” | 24” |
| Time in Container (min) | 60 days | 90 days | 90 days | 90 days |

### WETLAND SHRUBS

| | Seedling | 1 gallon | 3 gallon |
|---|---|---|---|
| Height | 6 - 12” | 10 - 15” | 15 - 24” |
| Roots | Fully rooted in pot but not rootbound | | |
| Time in Container (min) | 45 days | 60 days | 60 days |

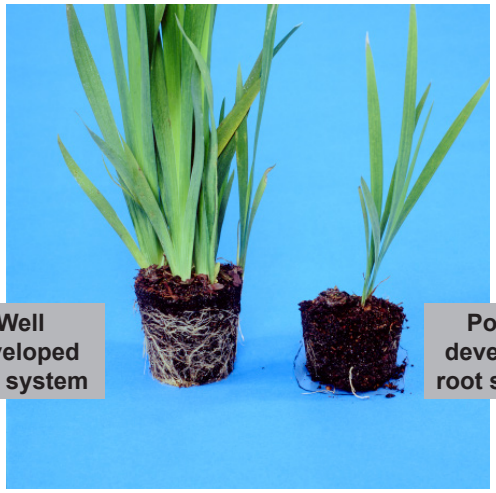
### WETLAND HERBS

| | 2 inch pot | 4 inch pot | 1 gallon |
|---|---|---|---|
| Roots | Fully rooted | Fully rooted | Fully rooted |
| Time in Container (min) | 45 days | 45 days | 45 days |

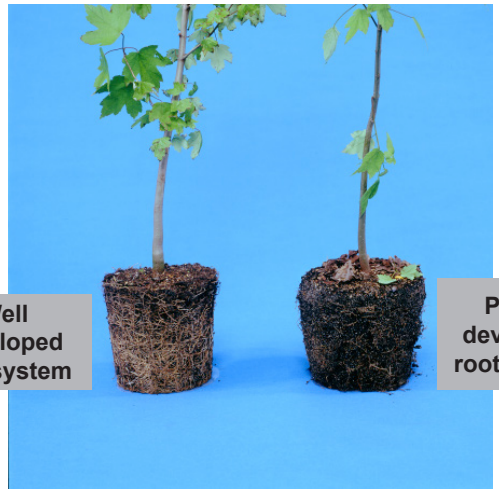
**Figure 2.** Bare Root Specimens


a. *Iris* sp.

**Figure 3.** Containerized Specimens




a. *Iris virginica*




b. *Acer rubrum*


c. *Iris virginica*


d. *Iris virginica*

## DOWNGRADING FACTORS

**Figure 4.**

a. *Thalia* sp.
More than 25% of total foliage damaged by insects.

b. *Cephalanthus occidentalis*
Insufficient lateral and feeder roots.

c. *Juncus effusus* (collected specimens)
Roots damaged by digging.

d. *Acer rubrum* (containerized specimen) root bound .

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# INDEX OF WETLAND SHRUBS

| SCIENTIFIC NAME | COMMON NAME |
|---|---|
| *Alnus serrulata* (Aiton)Willd. | hazel alder |
| *Baccharis angustifolia* Michx. | saltwater false willow |
| *Batis maritima* L. | saltwort; turtleweed |
| *Cephalanthus occidentalis* L. | buttonbush |
| *Clethra alnifolia* L. | coastal sweetpepper bush |
| *Cliftonia monophylla* (Lam.) Britton ex Sarg. | black titi |
| *Conocarpus erectus* L. | buttonwood |
| *Cornus foemina* Mill. | swamp dogwood |
| *Crataegus aestivalis* (Walter)Torr. & A.Gray | May haw |
| *Cyrilla racemiflora* L. | titi |
| *Forestiera acuminata* (Michx.)Poir. | eastern swamp privet |
| *Hypericum fasciculatum* Lam. | sandweed; peelbark St. John's-wort |
| *Ilex coriacea* (Pursh)Chapm. | large gallberry; sweet gallberry |
| *Ilex decidua* Walter | possumhaw |
| *Ilex myrtifolia* Walter | myrtle holly |
| *Illicium floridanum* J.Ellis | Florida anise |
| *Itea virginica* L. | Virginia willow; Virginia sweetspire |
| *Iva* spp. | marsh-elder |
| *Litsea aestivalis* (L.)Fernald | pondspice |
| *Lyonia lucida* (Lam.)K.Koch | fetterbush |
| *Myrica cerifera* L. | wax myrtle |
| *Myrica inodora* W.Bartram | odorless bayberry |
| *Rosa palustris* Marsh. | swamp rose |
| *Styrax americanus* Lam. | American snowbell, storax |
| *Symplocos tinctoria* (L.)L'Hér. | sweetleaf; horse sugar |
| *Viburnum rufidulum* Raf. | rusty blackhaw |

| COMMON NAME | SCIENTIFIC NAME |
|---|---|
| American snowbell, storax | *Styrax americanus* Lam. |
| black titi | *Cliftonia monophylla* (Lam.) Britton ex Sarg. |
| buttonbush | *Cephalanthus occidentalis* L. |
| buttonwood | *Conocarpus erectus* L. |
| coastal sweetpepper bush | *Clethra alnifolia* L. |
| eastern swamp privet | *Forestiera acuminata* (Michx.) Poir. |
| fetterbush | *Lyonia lucida* (Lam.) K.Koch |
| Florida anise | *Illicium floridanum* J. Ellis |
| hazel alder | *Alnus serrulata* (Aiton)Willd. |
| large gallberry; sweet gallberry | *Ilex coriacea* (Pursh) Chapm. |
| marsh-elder | *Iva* spp. |
| May haw | *Crataegus aestivalis* (Walter) Torr. & A. Gray |
| myrtle holly | *Ilex myrtifolia* Walter |
| odorless bayberry | *Myrica inodora* W. Bartram |
| pondspice | *Litsea aestivalis* (L.) Fernald |
| possumhaw | *Ilex decidua* Walter |
| rusty blackhaw | *Viburnum rufidulum* Raf. |
| saltwater false willow | *Baccharis angustifolia* Michx. |
| saltwort; turtleweed | *Batis maritima* L. |
| sandweed; peelbark St. John's-wort | *Hypericum fasciculatum* Lam. |
| swamp dogwood | *Cornus foemina* Mill. |
| swamp rose | *Rosa palustris* Marsh. |
| sweetleaf; horse sugar | *Symplocos tinctoria* (L.) L'Hér. |
| titi | *Cyrilla racemiflora* L. |
| Virginia willow; Virginia sweetspire | *Itea virginica* L. |
| wax myrtle | *Myrica cerifera* L. |

## INDEX OF WETLAND SEDGES

| SCIENTIFIC NAME | COMMON NAME |
|---|---|
| *Carex atlantica* L.H. Bailey ssp. *capillacea* (L.H. Bailey) Reznicek | prickly bog sedge |
| *Carex decomposita* Muhl. | cypress knee sedge |
| *Carex leptalea* Wahlenb. | bristly stalked sedge |
| *Carex stipata* Muhl. ex Willd. | awl fruit sedge |
| *Cladium mariscus* (L.) Pohl ssp. *jamaicense* (Crantz) Kük. | sawgrass |
| *Cyperus articulatus* L. | jointed flat sedge |
| *Cyperus haspan* L. | haspan flat sedge |
| *Cyperus odoratus* L. | fragrant flat sedge |
| *Eleocharis* spp. | spike rush |
| *Fimbristylis caroliniana* (Lam.) Fern. | Carolina fimbry |
| *Fimbristylis dichotoma* (L.)Vahl | forked fimbry |
| *Fimbristylis spadicea* (L.) Vahl | marsh fimbry |
| *Fimbristylis vahlii* (Lam.) Link | Vahl's fimbry |
| *Fuirena scirpoidea* Michx. | southern umbrella sedge |
| *Fuirena squarrosa* Michx. | hairy umbrella sedge |
| *Rhynchospora colorata* (L.) H.Pfeiff. | star rush whitetop |
| *Rhynchospora corniculata* (Lam.) A. Gray | shortbristle horned beaksedge |
| *Rhynchospora divergens* Chapman ex M.A. Curtis | spreading beaksedge |
| *Rhynchospora inundata* (Oakes) Fern. | narrow fruit horned beak sedge |
| *Rhynchospora latifolia* (Baldwin)W.W. Thomas | giant whitetop sedge |
| *Rhynchospora microcarpa* Baldwin ex A. Gray | southern beak sedge |
| *Rhynchospora miliacea* (Lam.) A. Gray | millet beak sedge |
| *Rhynchospora mixta* Britton ex Small | mingled beak sedge |
| *Rhynchospora tracyi* Britton | Tracy's beak sedge |
| *Schoenoplectiella erecta* (Poir.) Lye | sharp scale bulrush |
| *Schoenoplectus etuberculatus* (Steud.) Soják | Canby's bulrush |
| *Schoenoplectus robustus* (Pursh) M.T. Strong | salt marsh bulrush |
| *Schoenoplectus tabernaemontani* (C.C. Gmel.) Palla | soft stem bulrush |
| *Schoenus nigricans* L. | black bogrush |
| *Schoe noplectus americanus* (Pers.)Volkart ex Schinz & R. Keller | American bulrush |
| *Scirpus cyperinus* (L.) Kunth | woolgrass |
| *Scleria* spp. | nut-rush |

## INDEX OF WETLAND SEDGES (continued)

| COMMON NAME | SCIENTIFIC NAME |
|---|---|
| American bulrush | *Scirpus americanus* (Pers.) Volkart ex Schinz & R. Keller |
| awl fruit sedge | *Carex stipata* Muhl. ex Willd. |
| black bogrush | *Schoenus nigricans* L. |
| bristly stalked sedge | *Carex leptalea* Wahlenb. |
| Canby's bulrush | *Schoenoplectus etuberculatus* (Steud.) Soják |
| Carolina fimbry | *Fimbristylis caroliniana* (Lam.) Fern. |
| Cuban bulrush | *Oxycaryum cubense* (Poepp. & Kunth) Palla |
| cypress knee sedge | *Carex decomposita* Muhl. |
| ditch fimbry | *Fimbristylis schoenoides* (Retz.) Vahl |
| forked fimbry | *Fimbristylis dichotoma* (L.) Vahl |
| fragrant flat sedge | *Cyperus odoratus* L. |
| giant whitetop sedge | *Rhynchospora latifolia* (Baldwin) W.W. Thomas |
| hairy umbrella sedge | *Fuirena squarrosa* Michx. |
| Harper's fimbry | *Fimbristylis perpusilla* Harper ex Small & Britton |
| haspan flat sedge | *Cyperus haspan* L. |
| jointed flat sedge | *Cyperus articulatus* L. |
| marsh fimbry | *Fimbristylis spadicea* (L.) Vahl |
| millet beak sedge | *Rhynchospora miliacea* (Lam.) A. Gray |
| mingled beak sedge | *Rhynchospora mixta* Britton ex Small |
| narrow fruit horned beak sedge | *Rhynchospora inundata* (Oakes) Fern. |
| nut-rush | *Scleria* spp. |
| prickly bog sedge | *Carex atlantica* L.H. Bailey ssp. *capillacea* (L.H. Bailey) Reznicek |
| salt marsh bulrush | *Schoenoplectus robustus* (Pursh) M.T. Strong |
| sawgrass | *Cladium mariscus* (L.) Pohl ssp. *jamaicense* (Crantz) Kük. |
| sharp scale bulrush | *Schoenoplectiella erecta* (Poir.) Lye |
| short bristle horned beak sedge | *Rhynchospora corniculata* (Lam.) A. Gray |
| soft stem bulrush | *Schoenoplectus tabernaemontani* (C.C. Gmel.) Palla |
| southern beaksedge | *Rhynchospora microcarpa* Baldwin ex A. Gray |
| southern umbrella sedge | *Fuirena scirpoidea* Michx. |
| spike rush | *Eleocharis* spp. |
| spreading beak sedge | *Rhynchospora divergens* Chapman ex M.A. Curtis |
| star rush whitetop | *Rhynchospora colorata* (L.) H. Pfeiff. |
| Tracy's beak sedge | *Rhynchospora tracyi* Britton |
| umbrella plant | *Cyperus involucratus* Rottb. |
| Vahl's fimbry | *Fimbristylis vahlii* (Lam.) Link |
| woolgrass | *Scirpus cyperinus* (L.) Kunth |

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# INDEX OF WETLAND GRASSES

| SCIENTIFIC NAME | COMMON NAME |
|---|---|
| *Aristida* spp. | three-awn grasses |
| *Arundinaria gigantea* (Walter) Walter ex Muhl. | giant cane, switch cane |
| *Axonopus furcatus* (Flüggé) Hitchc. | big carpetgrass |
| *Distichlis spicata* (L.) Greene | saltgrass |
| *Leersia* spp. | cutgrass |
| *Luziola fluitans* (Michx.) Terrell & H.Rob. | southern watergrass |
| *Monanthochloe littoralis* Engelm. | key grass, shoregrass |
| *Muhlenbergia capillaris* (Lam.) Trin. | gulf muhly, hairy awn muhly |
| *Muhlenbergia schreberi* J.F. Gmel. | nimblewill muhly |
| *Panicum hemitomon* Schult. | maidencane |
| *Panicum rigidulum* Bosc ex Nees | redtop panicum |
| *Panicum virgatum* L. | switchgrass |
| *Paspalum distichum* L. | knotgrass |
| *Paspalum repens* P.J. Bergius | water paspalum |
| *Phanopyrum gymnocarpon* (Elliott) Nash | savannah panicum |
| *Spartina alterniflora* Loisel. | smooth cordgrass |
| *Spartina bakeri* Merr. | sand cordgrass |
| *Spartina patens* (Aiton) Muhl. | saltmeadow cordgrass |
| *Spartina spartinae* (Trin.) Merr. ex Hitchc. | gulf cordgrass |
| *Sporobolus virginicus* (L.) Kunth | coastal dropseed |
| *Zizania aquatica* L. | annual wild rice |
| *Zizaniopsis miliacea* (Michx.) Döll & Asch. | southern wild rice |

| COMMON NAME | SCIENTIFIC NAME |
|---|---|
| annual wildrice | *Zizania aquatica* L. |
| big carpetgrass | *Axonopus furcatus* (Flüggé) Hitchc. |
| coastal dropseed | *Sporobolus virginicus* (L.) Kunth |
| cutgrass | *Leersia* spp. |
| giant cane | *Arundinaria gigantea* (Walter) Walter ex Muhl. |
| gulf cordgrass | *Spartina spartinae* (Trin.) Merr. ex Hitchc. |
| gulf muhly, hairy awn muhly | *Muhlenbergia capillaris* (Lam.) Trin. |
| key grass, shoregrass | *Monanthochloe littoralis* Engelm. |
| knotgrass | *Paspalum distichum* L. |
| maidencane | *Panicum hemitomon* Schult. |
| nimblewill muhly | *Muhlenbergia schreberi* J.F. Gmel. |
| redtop panicum | *Panicum rigidulum* Bosc ex Nees |
| saltgrass | *Distichlis spicata* (L.) Greene |
| saltmeadow cordgrass | *Spartina patens* (Aiton) Muhl. |
| sand cordgrass | *Spartina bakeri* Merr. |
| savannah panicum | *Phanopyrum gymnocarpon* (Elliott) Nash |
| smooth cordgrass | *Spartina alterniflora* Loisel. |
| southern watergrass | *Luziola fluitans* (Michx.) Terrell & H. Rob. |
| southern wildrice | *Zizaniopsis miliacea* (Michx.) Döll & Asch. |
| switchgrass | *Panicum virgatum* L. |
| three-awn grasses | *Aristida* spp. |
| water paspalum | *Paspalum repens* P.J. Bergius |

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## INDEX OF WETLAND RUSHES

| SCIENTIFIC NAME | COMMON NAME |
|---|---|
| *Juncus acuminatus* Michx. | tapertip rush |
| *Juncus bufonius* L. | toad rush |
| *Juncus canadensis* J. Gay ex Laharpe | Canadian rush |
| *Juncus coriaceus* Mack. | leathery rush |
| *Juncus debilis* A. Gray | weak rush |
| *Juncus dichotomus* Elliott | forked rush |
| *Juncus diffusissimus* Buckley | slimpod rush |
| *Juncus effusus* L. | soft rush |
| *Juncus elliottii* Chapm. | bog rush |
| *Juncus gymnocarpus* Coville | Pennsylvania rush, Coville's rush |
| *Juncus marginatus* Rostk. | shore rush, grassleaf rush |
| *Juncus megacephalus* M.A. Curtis | bighead rush |
| *Juncus pelocarpus* E.Mey. | annual rush |
| *Juncus polycephalus* Michx. | manyhead rush |
| *Juncus repens* Michx. | lesser creeping rush |
| *Juncus roemerianus* Scheele | needle rush |
| *Juncus scirpoides* Lam. | needlepod rush |
| *Juncus tenuis* Willd. | path rush |

| COMMON NAME | SCIENTIFIC NAME |
|---|---|
| annual rush | *Juncus pelocarpus* E. Mey. |
| bighead rush | *Juncus megacephalus* M.A. Curtis |
| bog rush | *Juncus elliottii* Chapm. |
| Canadian rush | *Juncus canadensis* J. Gay ex Laharpe |
| forked rush | *Juncus dichotomus* Elliott |
| leathery rush | *Juncus coriaceus* Mack. |
| lesser creeping rush | *Juncus repens* Michx. |
| manyhead rush | *Juncus polycephalus* Michx. |
| needle rush | *Juncus roemerianus* Scheele |
| needlepod rush | *Juncus scirpoides* Lam. |
| path rush | *Juncus tenuis* Willd. |
| Pennsylvania rush, Coville's rush | *Juncus gymnocarpus* Coville |
| shore rush, grassleaf rush | *Juncus marginatus* Rostk. |
| slimpod rush | *Juncus diffusissimus* Buckley |
| soft rush | *Juncus effusus* L. |
| tapertip rush | *Juncus acuminatus* Michx. |
| toad rush | *Juncus bufonius* L. |
| weak rush | *Juncus debilis* A. Gray |

TOP

# INDEX OF EMERGENTS

| SCIENTIFIC NAME | COMMON NAME |
|---|---|
| *Bacopa caroliniana* (Walter) B.L. Rob. | blue-waterhyssop, lemon bacopa |
| *Bacopa monnieri* (L.) Pennell | waterhyssop, herb-of-grace |
| *Canna flaccida* Salisb. | golden canna, bandanna-of-the-Everglades |
| *Crinum americanum* L. | swamp lily, string lily |
| *Habenaria repens* Nutt. | water-spider orchid, floating orchid |
| *Hymenocallis* spp. | spiderlilies |
| *Iris hexagona* Walter | dixie iris, prairie iris |
| *Lachnanthes caroliniana* (Lam.) Dandy | red-root |
| *Lobelia cardinalis* L. | cardinal flower |
| *Lobelia glandulosa* Walter | glades lobelia |
| *Ludwigia repens* J.R. Forst. | creeping primrose willow |
| *Nelumbo lutea* Willd. | American lotus |
| *Nuphar lutea* (L.) Sm. | spadder dock |
| *Nymphaea odorata* Aiton | fragrant water-lily |
| *Nymphoides aquatica* (J.F.Gmel.) Kuntze | banana-lily, big floating heart |
| *Orontium aquaticum* L. | golden club |
| *Peltandra sagittifolia* (Michx.) Morong | spoon flower |
| *Peltandra virginica* (L.) Schott | green arrow arum |
| *Polygonum* spp. | smartweed, knotweed |
| *Pontederia cordata* L. | pickerelweed |
| *Sagittaria* spp. | arrowhead |
| *Saururus cernuus* L. | lizard's tail |
| *Thalia geniculata* L. | alligatorflag, fireflag |
| *Xyris* spp. | yelloweyed-grass |

| COMMON NAME | SCIENTIFIC NAME |
|---|---|
| alligatorflag, fireflag | *Thalia geniculata* L. |
| American lotus | *Nelumbo lutea* Willd. |
| arrowhead | *Sagittaria* spp. |
| banana-lily, big floating heart | *Nymphoides aquatica* (J.F. Gmel.) Kuntze |
| blue-waterhyssop, lemon bacopa | *Bacopa caroliniana* (Walter) B.L. Rob. |
| cardinal flower | *Lobelia cardinalis* L. |
| creeping primrose willow | *Ludwigia repens* J.R. Forst. |
| dixie iris, prairie iris | *Iris hexagona* Walter |
| fragrant water-lily | *Nymphaea odorata* Aiton |
| glades lobelia | *Lobelia glandulosa* Walter |
| golden canna, bandanna-of-the-Everglades | *Canna flaccida* Salisb. |
| golden club | *Orontium aquaticum* L. |
| green arrow arum | *Peltandra virginica* (L.) Schott |
| lizard's tail | *Saururus cernuus* L. |
| pickerelweed | *Pontederia cordata* L. |
| red-root | *Lachnanthes caroliniana* (Lam.) Dandy |
| smartweed, knotweed | *Polygonum* spp. |
| spadder dock | *Nuphar lutea* (L.) Sm. |
| spiderlilies | *Hymenocallis* spp. |
| spoon flower | *Peltandra sagittifolia* (Michx.) Morong |
| swamp lily, string lily | *Crinum americanurm* L. |
| waterhyssop, herb-of-grace | *Bacopa monnieri* (L.) Pennell |
| water-spider orchid, floating orchid | *Habenaria repens* Nutt. |
| yelloweyed-grass | *Xyris* spp. |

## REFERENCES FOR WETLANDS


Broschat, Timothy K. and Alan W. Meerow. 1991. Betrock' s reference guide to Florida landscape plants. Betrock Information Systems, Inc. 427 pp.

Brummitt, R. K. and C. E. Powell. 1992. Authors of plant names. Royal Botanic Gardens, Kew, Great Britain. 732 pp.

Burch, Derek, Daniel B. Ward, and David W. Hall. 1988. Checklist of the woody cultivated plants of Florida. Extension Sale Publication SP-33. Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL. 80 pp.

Dressler, Robert L., David W. Hall, Kent D. Perkins, and Norris H. Williams. 1987. Identification manual for wetland species of Florida. SP-35. Institute of Food and Agricultural Sciences, University of Florida, Gainesville, FL. 297 pp.

Everett, Thomas H. 1982. The New York Botanical Garden illustrated encyclopedia of horticulture, 10 vols. Garland Publishing, Inc., New York, NY. 3596 pp.

Godfrey, Robert K. 1988. Trees, shrubs and woody vines of northern Florida and adjacent Georgia and Alabama. University of Georgia Press, Athens, GA. 734 pp.

Godfrey, Robert K. and Jean W. Wooten. 1979. Aquatic and wetland plants of southeastern United States, Monocotyledons. University of Georgia Press, Athens, GA. 712 pp.

Godfrey, Robert K. and Jean W. Wooten. 1981. Aquatic and wetland plants of southeastern United States, Dicotyledons. University of Georgia Press, Athens, GA. 933 pp.

Huxley, Anthony (ed.) 1992. The new Royal Horticultural Society dictionary of gardening, 4 vols. The Stockton Press, New York, NY. 3353 pp.

Kartesz, John T. 1994. A synonymized checklist of the vascular flora of the United States, Canada, and Greenland. 2nd edition. Timber Press, Portland, OR. 2 vols. 622 & 816 pp.

Mabberley, D. J. 1989. The plant-book. Cambridge University Press, Cambridge. 706 pp.
Staff of Liberty Hyde Bailey Hortorium. 1976. Hortus third. MacMillan Publishing Co., Inc., New York, NY. 1290 pp.

United States Department of Agriculture, Soil Conservation Service. 1982. National list of scientific plant names, 2 vols. SCS-TP-159. 416 + 438 pp.