

Florida Grades and Standards for Nursery Plants 2022



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INTRODUCTION

Florida's unique and diverse climate provides environmental conditions favorable for the growth of about 25,000 plant species. 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, contractor, and seller. This is further necessitated as buyer, contractor, 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 Nursery 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. These grades and standards shall not be used as specifications nor shall they be referenced in their entirety as a replacement for specifications.

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

The grades and standards are not intended to be used as specifications for specific jobs or contracts. Minimum heights and/or spreads used in this document represent the size of a quality plant. They do not represent actual plants available at any given time of year or in a given market as plant sizes available at any given time vary based on supply and demand.

ACKNOWLEDGMENTS

The Florida Department of Agriculture and Consumer Services (FDACS) gratefully acknowledges the assistance of the Florida Nursery, Grower and Landscape Association (FNGLA) 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 sixth 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, consultants, contractors, designers, growers, and inspectors.

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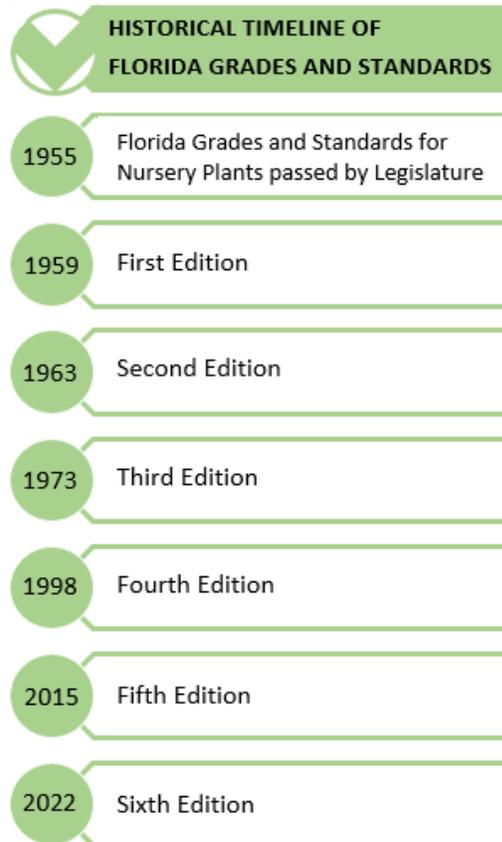
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PLANT NAMES

The accepted scientific name(s) and preferred common name(s) are referenced in this publication in order to be in compliance with the General Requirements (refer to page iv), until changed by sanctioned authority. The scientific name is required to positively identify a plant. In addition, other scientific names (synonyms, horticultural names, invalid scientific names) and other common names are included.

Modern scientific techniques have provided new information about taxonomic relationships and led to changes in plant names, but some possible name changes have not yet been settled. For this publication, names listed in *The New Royal Horticultural Society Dictionary of Gardening* (Huxley, et.al., 1999) are considered authoritative. For plants named after the publication of this reference, individual specialists and plant taxonomists were consulted. We are grateful for the assistance of Dr. Patti Anderson, Botanist, Division of Plant Industry(DPI), FDACS, who used *Guide to the Vascular Plants of Florida, 3rd Edition*, authored by R.P. Wunderlin and B.F. Hansen, as a taxonomic reference.

CONTRACT GUIDELINES

Verification of specified grades are to be determined at the time of delivery. Grades determined at the time of initial and regrading inspections 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 past or predicted future 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, palms, shrubs, groundcovers, or other horticultural materials are not of the specified grade, they may, at their discretion, request a regrading inspection by the DPI. Upon the findings provided, parties may seek further remedy by requesting replacements of plant materials or other corrective actions, including, but not limited to, legal recompense.

Note: When agreed upon by parties identified in the contract, additional regrading inspections may be conducted during the construction/establishment/warranty periods to determine compliance with the standards set forth in this document. These additional inspections shall be conducted independent of involvement from the Division on Plant Industry.

PLANTS NOT LISTED IN INDEX

Landscape architects and contractors have requested that the quality of plant species for which grades have not been established be consistent with those species for which grade standards have been established. The textbox below contains sample language; although, not part of the grading regulation, that could be included in contracts. For instance when the architect or contractor wish to ensure the plant quality is the same for species not included in index, this language can be binding under the contract, giving a basis for inspection and legal testimony if necessary.

Sample contract language: *ALL SPECIES NOT LISTED IN GRADES AND STANDARDS FOR NURSERY PLANTS, PUBLISHED BY FDACS, SHALL CONFORM TO A FLORIDA #1.*

This document is meant to be used for ANY species sold in Florida. To establish the grade for tree species or cultivar 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) shall be called to the attention of the DPI within thirty (30) days following delivery to the landscape project if the DPI 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 shall, 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 DPI. 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 DPI relative to plant disease and insect problems.

REGISTERING COMPLAINTS

All complaints or requests for a 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 DPI representative to conduct the initial investigation of such complaints. For further assistance please call 888-397-1517.

UNDER SIZING AND SPECIES SUBSTITUTION

It is important not to confuse the plant size with the plant grade specified in contract documents (can include bids, contracts, plans, specifications, etc.). Plants may be under sized according to the contract document but may still retain the grade specified. In this instance, the under sized plant(s) is a breach of the contract document(s), not a violation of *Florida Grades and Standards for Nursery Plants*.

A substitution of one species or cultivar for another is also a breach of the contract documents, not a violation of *Florida Grades and Standards for Nursery Plants*.

GENERAL REQUIREMENTS

The plant material specified in contract documents shall be governed by the following requirements:

1. Be eligible for certification by the DPI.
2. Originate from a registered nursery under inspection with DPI, 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, as follows:
 - a. Plants shall be plainly and legibly labeled by the growers to show the scientific or accepted common name, including variety and rootstock when applicable, and the grade; and
 - b. only one name and grade label is needed on a group of plants of the same species and cultivars, 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; and
 - c. any invoice may be used in lieu of labels to indicate the number, species and cultivar, 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 decline, broken, frozen or damaged.

TREES

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INTRODUCTION TO TREE GRADING

The quality or grade of a tree at time of planting may have a large impact on its longevity in the landscape. Tree quality is based on grading of the trunk, branch, crown, leaf, and root characteristics. This introduction presents a brief description of some of the distinctions among tree grades. These descriptions are not to be used to distinguish one grade from another.

Large maturing trees with codominant trunks in the lower half of the tree canopy should not be planted. These may be sturdy when they are small but become increasingly prone to failure as they grow larger.

Florida Fancy is the highest grade. These trees should have one dominant trunk into the crown of the tree and branch diameter should not be larger than $\frac{2}{3}$ the diameter of the trunk measured directly above the branch union. There should be no flush cuts and no open wounds on the trunk or major branches. The crown should be uniform and show little, if any, evidence of chlorosis, necrosis, disease, or insect infestation. The root ball should be appropriately sized (refer to Matrices, pages 17-19) and be free of severe defects.

Florida #1 is a high grade. These trees may require some corrective pruning (refer to Appendix A, Part 1, page 33) so they develop a quality trunk and branch structure. They may have minor trunk injuries or could have other defects. Defects may be corrected by pruning the tree at planting and/or once or twice within a year or two after planting.

Florida #2 is a lower grade. These trees require major corrective pruning to develop a structure which will promote longevity. These trees can be misshapen and such defects may take several pruning doses over time to correct.

Cull is the lowest grade. These trees lack vigor or vitality and/or have poor trunk and branch structure or severe root defects. They may 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 are likely to establish more quickly. The better grades of trees 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 is practical to start with a healthy, well-formed tree.

Trees can be pruned before planting, at planting, and after planting to improve the grade (refer to Appendix A, Part 1, page 33).

Note: Grades established for trees do not apply to trees installed for wetland mitigation. For trees installed for wetland mitigation, refer to the wetland section of *Florida Grades and Standards for Nursery Plants*.

Note: *Florida Grades and Standards for Nursery Plants* do not apply to trees grown with an intentional specialty form such as braided stems, poodles, espalier, topiary, bonsai, etc.

STEPS FOR DETERMINING TREE GRADE

Step 1. Choose the appropriate tree matrix type (refer to Index of Trees, pages 23-30).

Appropriate matrix type: _____

Measure the caliper (refer to Step 1, page 9). Note: For multi-trunk, small-maturing trees, use container size or root ball diameter in place of caliper.

Caliper: _____

Step 2. Inspect the trunk structure and circle the appropriate grade below based on trunk structure only (refer to Step 2, page 10). Skip this step if the tree is a small-maturing tree (refer to Index of Small-Maturing Trees, page 30).

Florida Fancy Florida #1 Florida #2 Cull

Step 3. Inspect the crown uniformity and circle the grade below based on crown uniformity only (refer to Step 3, page 11). Note: For crown uniformity, there is no Florida #1 or Cull grade.

Florida Fancy Florida #2

Step 4. Record the lowest grade determined in Step 2 and Step 3.

Step 4 Grade: _____

Step 5. Record the grade after making the following deductions:

- If one of the following statements is true, reduce the grade determined in Step 4 by one.
- If two or more of the following statements are true, reduce the grade determined in Step 4 by two.

For multi-trunk, small-maturing trees:

- Skip statements a) and d) below; and
- Use container size or root ball diameter instead of caliper for statement b below.

Note: When making deductions in statements a, b, and d below, refer to matrix type and caliper previously recorded in Step 1.

T	F	Step 5
		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 root ball is two or more sizes undersized, reduce the grade by two.
		e) Tree has a trunk caliper larger than two inches and requires a stake to hold the trunk erect. For multi-trunk trees, this applies to each trunk individually.

Step 5 Grade: _____

Step 6. Record the grade after making the following deductions:

- If the tree being graded is a Florida Fancy in Step 5, only one of the following statements must be true to reduce the Florida Fancy grade to Florida #1.
- If two of the following statements are true, reduce the grade determined in Step 5 by one.
- If three of the following statements are true, reduce the grade determined in Step 5 by two.

T	F	Step 6
		a) Flush cuts were made when pruning branches from the trunk (refer to Step 6, page 12).
		b) Branch stubs were left beyond the collar. A branch stub may be removed and not reduce the grade (refer to Step 6, page 13).
		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 are not downgraded (refer to Step 6, page 13).
		d) More than 10% of the crown exhibits necrosis, chlorosis, pest damage, disease, or tip dieback (refer to Step 6, page 14).
		e) The crown is thin and sparsely foliated. Recently harvested trees, as well as some species through fall and early spring, are naturally thin and sparse and are not downgraded (refer to Step 6, page 14).
		f) There is included bark between the trunk and a major lateral branch or between main trunks (refer to Photo 29, page 37). This is not a downgrade on small-maturing trees (refer to Step 6, page 15).

Step 6 Grade: _____

Step 7. Record the grade after making the following determination.

- If one of the following statements is true, reduce the grade from Step 6 to a Cull (refer to Step 7, Figure 11, page 16).

T	F	Step 7
		<p>a) The top-most root emerges from root collar more than two inches below the root ball surface.</p> <p>Note: Soil, substrate and/or roots can be removed from the top 1/3 of the root ball to conform to this depth requirement.</p>
		<p>b) All three of the following are true:</p> <ol style="list-style-type: none"> 1. One or more roots greater than 1/10 the trunk caliper; and 2. circles more than 1/3 of the trunk; and 3. is in the top ¼ of the root ball. <p>Note: If the diameter of the circling root(s) is less than 1/3 of the trunk caliper, the circling root(s) can be cut at the point where it begins to circle. The tree would then no longer be a Cull.</p> <p>Note: The presence of a circling root(s) is not a downgrade when three or more non-circling, structural roots are growing higher in the substrate profile over the circling root. These non-circling, structural roots do not need to be equally spaced around the trunk (refer to Step 7, Figure 11, page 16).</p>

Step 7 Final Grade: _____

TREE GRADING EXAMPLE 1

This example is a guide for grading a sample 14-foot tall, 45-gallon container grown live oak (*Quercus virginiana*) tree with a 3-inch caliper trunk measured six inches above the ground. The tree has a 66-inch uniform crown diameter. The bark is intact and there are no evident flush cuts. There are several recent, open, proper pruning cuts along the lower trunk. There are two nearly equal diameter trunks in the lower ½ of the tree with included bark.

Step 1. Choose the appropriate tree matrix type (refer to Step 1, page 9).

Matrix type: Type 1 Matrix, Tall and Wide

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

Caliper: 3-inches

Step 2. Inspect the trunk structure and circle the appropriate grade below based on trunk structure only (refer to Step 2, page 10).

Step 2 Grade: Florida #2

Explanation: The trunk divides into two nearly equal trunks along the lower ½ of the tree.

Step 3. Grade the tree according to crown uniformity (refer to Step 3, page 11).

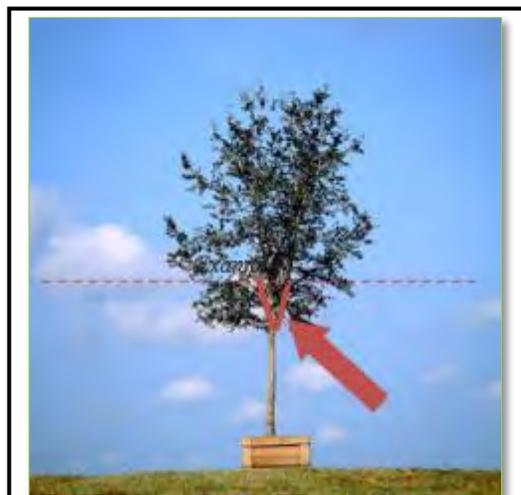
Step 3 Grade: Florida Fancy

Explanation: This example tree has a uniform crown, as indicated in the example description (refer to Step 3, Figure 4.A, page 11).

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

Step 4 Grade: Florida #2

Explanation: The grade determined in Step 2 = Florida #2, and in Step 3 = Florida Fancy.



live oak - *Quercus virginiana*
Final Grade: Florida #2

--- Indicates the half-way mark of the tree height.
→ Pointing to the codominant trunks indicated by the solid red lines.

Step 5. Record the grade after making the following deductions:

- If one of the following statements is true, reduce the grade determined in Step 4 by one.
- If two or more of the following statements are true, reduce the grade determined in Step 4 by two.

T	F	Step 5
	x	a) Tree does not meet height requirement.
	x	b) Crown does not meet diameter requirement.
	x	c) Root ball is not secure enough to successfully transplant.
	x	d) Root ball or container is undersized. If root ball is two or more sizes undersized, reduce grade by two.
	x	e) Tree has a trunk caliper larger than two inches and requires a stake to hold the trunk erect. For multi-trunk trees, this applies to each trunk individually.

Step 5 Grade: Florida #2

Explanation: The grade determined in Step 4 is not reduced because all statements in Step 5 are false.

Step 6. Record the grade after making the following deductions:

- If the tree being graded is currently a Florida Fancy, only one of the following statements must be true to reduce the Florida Fancy grade to Florida #1.
- If two of the following statements are true, reduce the grade determined in Step 5 by one.
- If three of the following statements are true, reduce the grade determined in Step 5 by two.

T	F	Step 6
	x	a) Flush cuts were made when pruning branches from the trunk (refer to Step 6, page 12).
	x	b) Branch stubs were left beyond the collar (refer to Step 6, page 13).
	x	c) Open trunk wounds are evident (refer to Step 6, page 13).
	x	d) More than 10% of the crown exhibits necrosis, chlorosis, pest damage, disease, or tip dieback (refer to Step 6, page 14).
	x	e) The crown is thin and sparsely foliated (refer to Step 6, page 14).
x		f) There is included bark between the trunk and a major lateral branch or between main trunks ((refer to Step 6, page 15).

Step 6 Grade: Florida #2

Explanation: The grade determined in Step 5 is not reduced because only one statement is true.

Step 7. Record the grade after making the following determination:

- If one of the following statements is true, reduce the grade from Step 6 to a Cull (refer to Step 7, Figure 11, page 16).

T	F	Step 7
	x	a) The top-most structural root emerges from root collar more than two inches below the top of the root ball surface.
	x	b) All three of the following are true: One or more roots greater than 1/10 the trunk caliper circle more than 1/3 of trunk in the top 1/4 of the root ball.

Step 7 Final Grade: Florida # 2

Explanation: None of the statements in Step 7 are true, so the grade remains Florida #2.

TREE GRADING EXAMPLE 2

This example is a guide for grading a sample 6-foot tall, 30-gallon container grown wax privet (*Ligustrum japonicum*) tree with a 6-foot crown diameter. The tree stands erect by itself and root ball is secure enough to transplant. There is chlorosis on 4% or 5% of the crown, there is included bark between the trunks, and the crown was sheared.

Step 1. Choose the appropriate tree matrix type (refer to Step 1, page 9).

Matrix type: Type 3 Matrix, Short and Wide/Multi-Trunk

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

Container size: 30 gallons

Explanation: When grading multi-trunk small-maturing trees, use the container size or root ball diameter, not the caliper.

Step 2. Skip this step.

Explanation: This step is skipped because the wax privet is a small-maturing tree and Step 2 is not used when grading this species.

Step 3. Grade the tree according to crown uniformity (refer to Step 3, page 11).

Step 3 Grade: Florida Fancy

Explanation: The example tree has a uniform crown as illustrated in Step 3, page 11).

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

Step 4 Grade: Florida Fancy

Explanation: Step 2 is skipped; therefore, the grade in Step 3 is the only grade to use thus far.

Step 5. Record the grade after making the following deductions:

- If one of the following statements is true, reduce the grade determined in Step 4 by one.



- If two or more of the following statements are true, reduce the grade determined in Step 4 by two.

For multi-trunk, small-maturing trees:

- Skip statements a) and d) below; and
- Use container size or root ball diameter instead of caliper for statement b below.

T	F	Step 5
		a) Tree does not meet height requirement.
	X	b) Crown does not meet diameter requirement.
	X	c) Root ball is not secure enough to successfully transplant.
		d) Root ball or container is undersized. If root ball is two or more sizes undersized, reduce grade by two.
	X	e) Tree has a trunk caliper larger than two inches and requires a stake to hold the trunk erect. For multi-trunk trees, this applies to each trunk individually.

Step 5 Grade: Florida Fancy

Explanation: Steps a) and d) were skipped. The grade determined in Step 4 is not reduced because all remaining statements in Step 5 are false.

Step 6. Record the grade after making the following deductions:

- If the tree being graded is currently a Florida Fancy, only one of the following statements must be true to reduce the Florida Fancy grade to Florida #1.
- If two of the following statements are true, reduce the grade determined in Step 5 by one.
- If three of the following statements are true, reduce the grade determined in Step 5 by two.

T	F	Step 6
	x	a) Flush cuts were made when pruning branches from the trunk (refer to Step 6, page 12).
	x	b) Branch stubs were left beyond the collar (refer to Step 6, page 13).
	x	c) Open trunk wounds are evident (refer to Step 6, page 13).
	x	d) More than 10% of the crown exhibits necrosis, chlorosis, pest damage, disease, or tip dieback (refer to Step 6, page 14).
	x	e) The crown is thin and sparsely foliated (refer to Step 6, page 14).
x		f) There is included bark between the trunk and a major lateral branch or between main trunks (refer to Step 6, page 15). Not a downgrade on small-maturing trees.

Step 6 Grade: Florida Fancy

Explanation: The grade determined in Step 5 is not reduced because, even though the statement in Step 6 (f) is true, included bark is not a downgrade on small maturing trees.

Step 7. Record the grade after making the following determination:

- If one of the following statements is true, reduce the grade from Step 6 to a Cull (refer to Step 7, Figure 11, page 16).

T	F	Step 7
	x	a) The top-most structural root emerges from root collar more than two inches below the top of the root ball surface.
	x	b) All three of the following are true: One or more roots greater than 1/10 the trunk caliper circle more than 1/3 of trunk in the top 1/4 of the root ball.

Step 7 Final Grade: Florida Fancy

Explanation: None of the statements in Step 7 are true; therefore, the grade remains Florida Fancy.

STEP 1. CHOOSING TREE MATRIX AND MEASURING TREE CALIPER

Step 1 in the tree grading process begins with choosing the appropriate tree matrix type. This is determined by locating the tree species in the Index of Trees by either common or scientific name (refer to pages 23 - 30). This index assigns the correct matrix type. Once determined, record the appropriate matrix in Step 1.

For example, if the tree being graded is a sweet acacia (*Acacia farnesiana*), the appropriate matrix type is 3.

Matrix type	Common Name*	Scientific Name
3	acacia, sweet	<i>Acacia farnesiana</i>
1	African tulip tree	<i>Spathodea campanulata</i>
1	almond, tropical	<i>Terminalia catappa</i>
2	American hophornbeam	<i>Ostrya virginiana</i>

Matrix Type	Scientific Name	Common Name*
3	<i>Acacia farnesiana</i>	acacia, sweet
1	<i>Acer floridanum</i>	maple, Florida
3	<i>Acer palmatum</i>	maple, Japanese
1	<i>Acer rubrum</i> & cv's.	maple, red

Step 1 in the tree grading process continues with measuring the caliper. Trunk caliper is measured six inches from the ground on trees up to and including 4-inches in caliper, and 12 inches above the ground for larger trees (refer to Figure 1). Remember that multi-trunk, small-maturing trees, use container size or root ball diameter in place of caliper.

Diameter at Breast Height (DBH) is not an appropriate measurement for nursery grown trees.

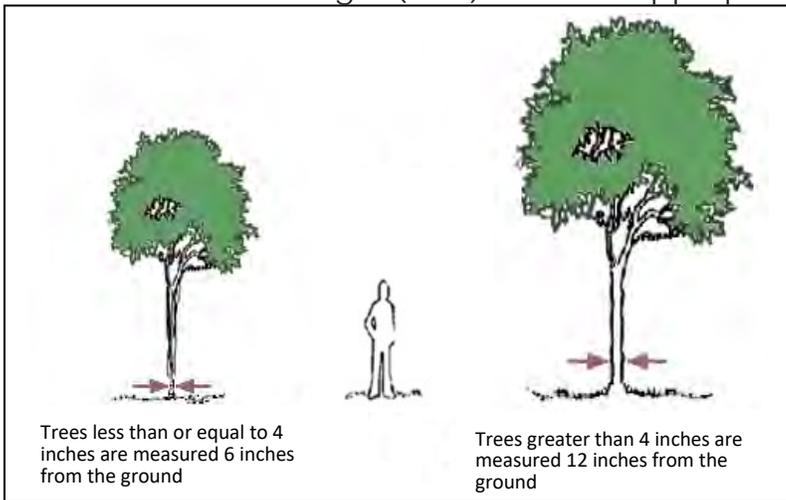


Figure 1.

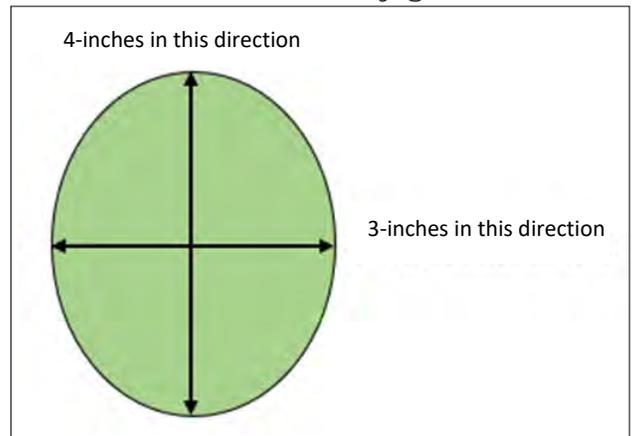


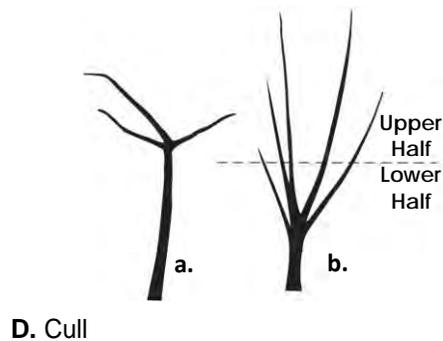
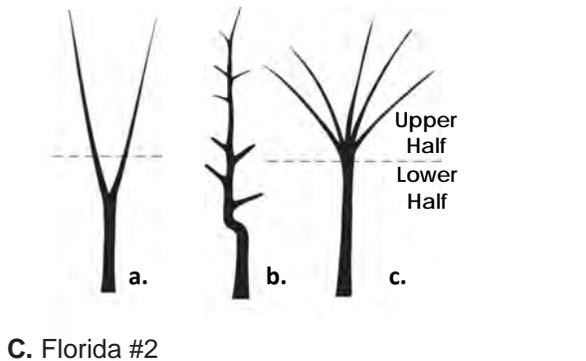
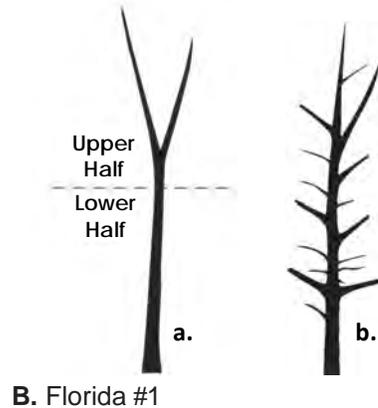
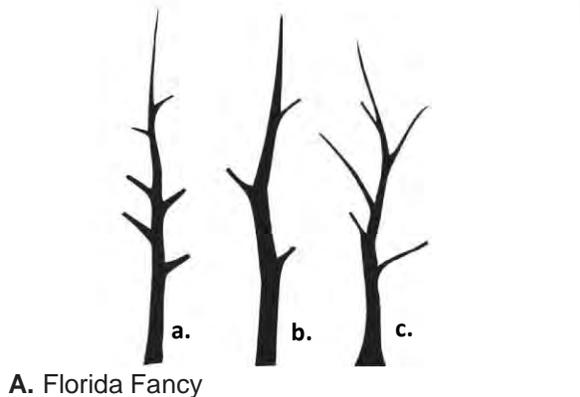
Figure 2.

Because tree trunks are not always round, the average of the thickest part and that perpendicular to it can be referred to as caliper. In this example, the trunk is 4-inches in one direction and 3-inches perpendicular to it. The average of these two measurements is 3½; thus, making the caliper 3½-inches (refer to Figure 2).

Measure the caliper of the tree being graded. Once determined, record the appropriate caliper in Step 1.

STEP 2. DETERMINING TRUNK STRUCTURE QUALITY

Step 2 in the tree grading process begins with inspecting the trunk to determine the quality of the trunk structure. Using the illustrations below, choose the structure and corresponding text that most closely represents only the trunk structure of the tree being graded. Once chosen, circle the appropriate tree grade for Step 2. Remember to skip Step 2 when grading small-maturing trees (refer to Index of Small-Maturing Trees, page 30).



A. Florida Fancy. The trunk extends into one central leader in the approximate center of the tree as shown above; leader does not have to be perfectly straight. The tip of the central leader must be intact, and its terminal bud must be the highest part of the tree. No branch may have a diameter greater than $\frac{2}{3}$ the central leader diameter measured directly above the union. If the central leader divides in two nearly equal diameter stems in the upper 10% of the tree, the trunk is not downgraded to a Florida #1.

B. Florida #1. The trunk divides into two nearly equal diameter leaders in the upper $\frac{1}{2}$ of the tree. If one leader is $\frac{2}{3}$ or less than the diameter of the other leader (measured above the union), they are not equal; therefore, making the trunk a Florida Fancy. The tip of the leader may be cut up to $\frac{1}{10}$ of trunk caliper without being downgraded.

C. Florida #2. The trunk divides into two nearly equal diameter leaders in the lower $\frac{1}{2}$ of the tree, or divides into three or more nearly equal diameter leaders in the upper $\frac{1}{2}$ of the tree. If the trunks are $\frac{2}{3}$ or less than the diameter of one leader measured above the union, do not downgrade. If the tip of the leader(s) is cut up to $\frac{1}{10}$ of the trunk caliper, do not downgrade. If there is a dogleg in the clear trunk portion of the tree, grade the tree Florida #2. If a dogleg is in the crown of the tree, do not downgrade. (reference Figure 3.C.b)

C. Cull. The trunk divides into three or more nearly equal diameter leaders in the lower $\frac{1}{2}$ of the tree.

Note: Trees may be pruned at planting in an effort to improve grade. For example, one of two nearly equal trunks correctively pruned according to Appendix A (i.e. removing about $\frac{2}{3}$ of length) may meet grade even though the branch diameter on the pruned stem remains unchanged (refer to Appendix A, Part 1, page 33).

Figure 3.

STEP 3. DETERMINING CROWN UNIFORMITY

Step 3 in the tree grading process begins with inspecting the crown to determine uniformity. Using the illustrations below, choose the crown uniformity and corresponding text that most closely represents the crown uniformity of the tree being graded. Once chosen, circle the appropriate tree grade for Step 3. Remember, that for crown uniformity, there is no Florida #1 or Cull grade; there can only be a Florida Fancy or Florida #2 grade.

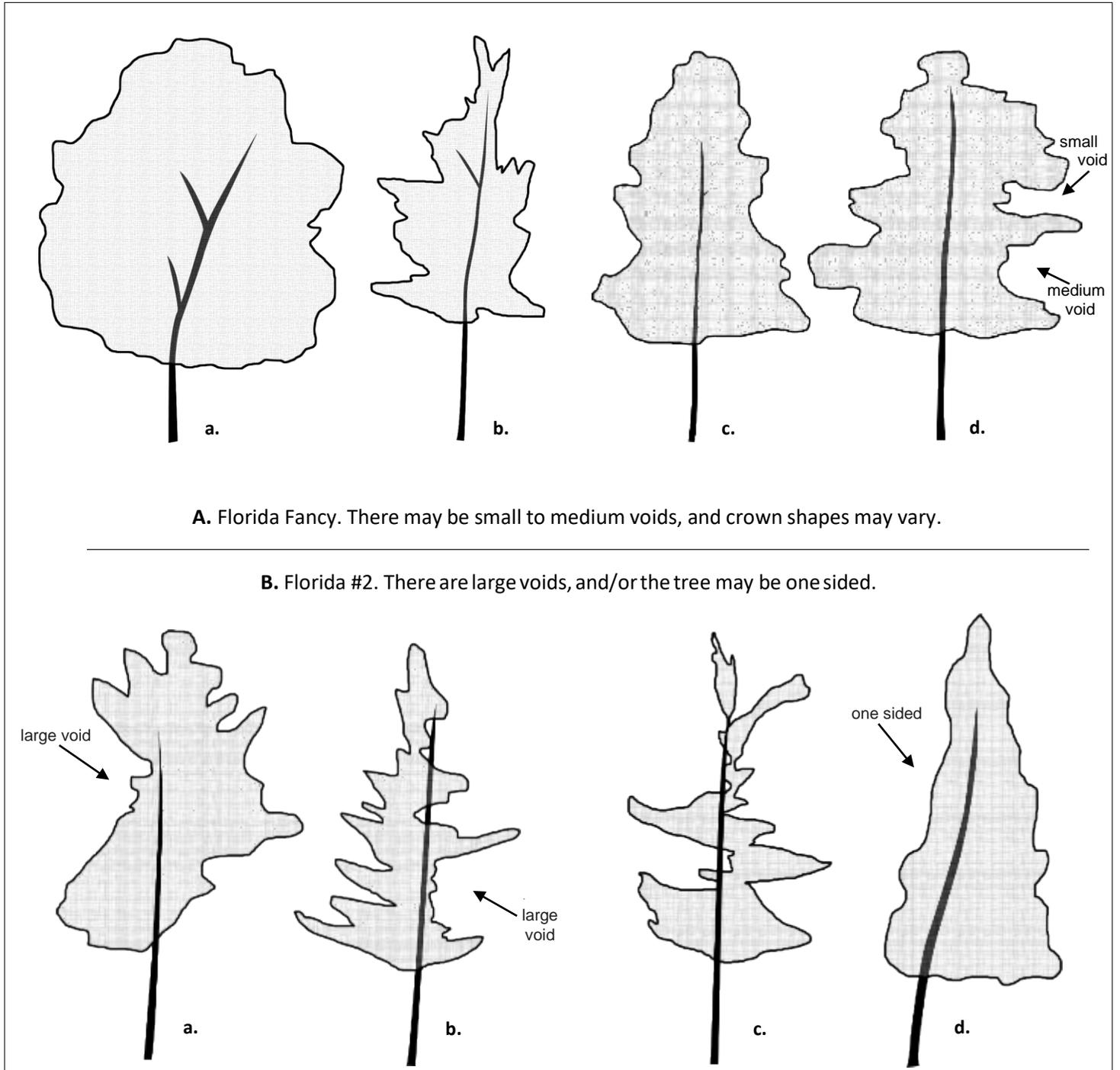
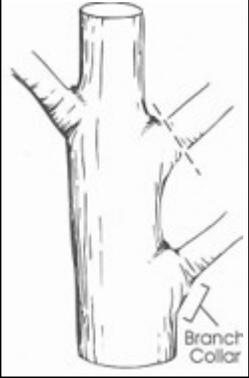
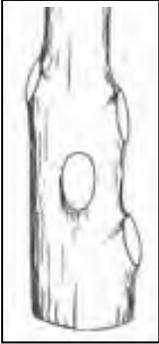


Figure 4.

Note: Not all shapes and forms are represented in the above illustrations. The images include a sample of what would be considered acceptable for Florida Fancy and Florida #2.

STEP 6. DETERMINING CORRECTLY MADE PRUNING CUTS AND OTHER DEFECTS

Step 6 in the grading process begins with inspecting the tree to determine if pruning cuts have been made correctly. Using the illustrations below for Step 6(a), determine if the correct pruning cuts have been made. Once determined, record results in Step 6(a). Remember, if the pruning cuts have not been made correctly, deduct accordingly.

<p>A.</p> 	<p>B.</p> 	<p>C.</p> 	<p>D.</p> 
<p>E.</p> 	<p>F.</p> 	<p>G.</p> 	

A. Notice the swelling at the base of each branch. This is branch and trunk tissue, also known as the collar, which helps hold the branch securely on the trunk. A proper cut is made along the dashed line, always to the outside of the branch bark ridge (BBR) and angled away from trunk. Some species have no swelling at the base of branches; therefore, it may be more difficult to determine exactly where to make a proper pruning cut.

B. Cut along line (YES) just outside the collar to properly remove the branch. Cutting closer to the trunk line (NO) would result in an improper flush cut. Cutting farther from the trunk would result in an improper stub cut.

C. Properly remove branches from the trunk. Always cut to the outside of the branch collar and BBR. Notice that the BBR is still visible on top of the pruning cut and the pruning cut is nearly circular.

D. The right side of photograph shows a properly executed pruning cut with BBR and collar intact. Cutting along Line (NO) would result in an improper flush cut.

E. Never make an improper flush cut as shown here. Notice that the BBR is missing on top of the pruning cut and the pruning cut is oval. Improper flush cuts initiate trunk decay and can reduce growth.

F. This photograph shows an improper flush cut shaped like an oval. Notice that the wound wood or callus which closes over the flush cut is missing from the top and bottom of the cut.

G. This photograph shows a proper pruning cut. Notice that the wound wood or callus is circular.

Figure 5.

Step 6 in the grading process continues with inspecting the tree for other defects. Using the illustrations below for Step 6(b), determine if other defects are present. Once determined, record results in Step 6 (b).

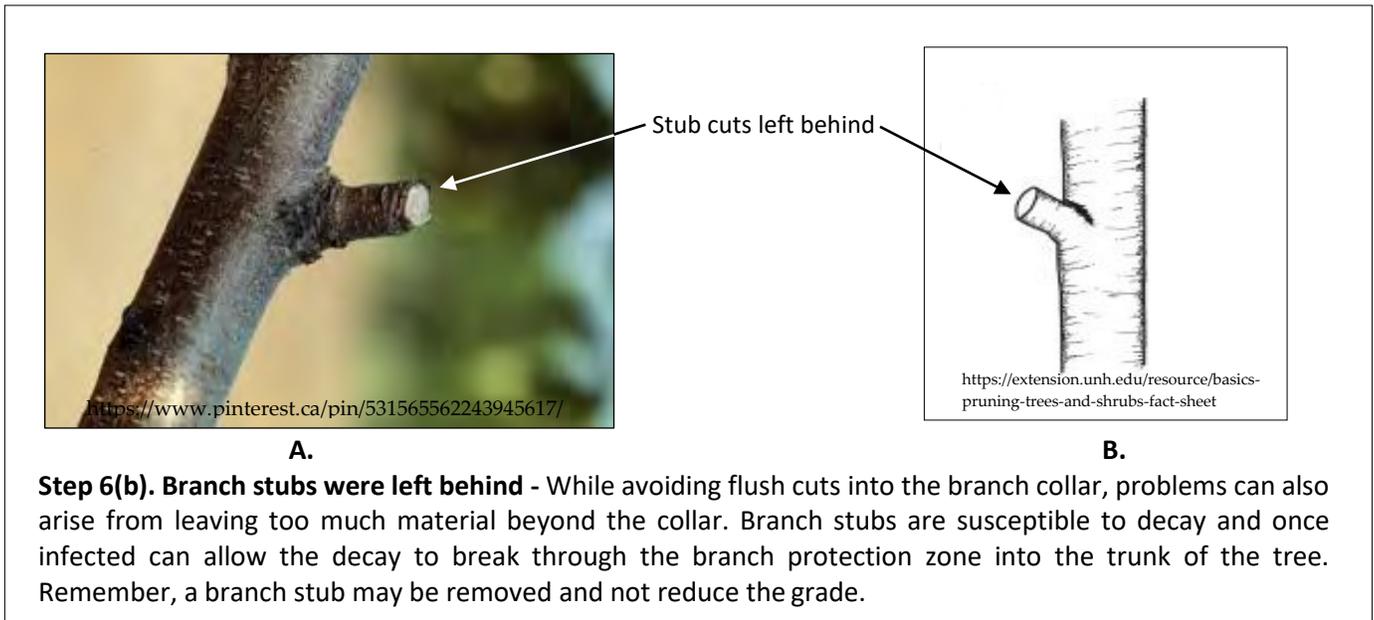


Figure 6.

Step 6 in the grading process continues with inspecting for open trunk wounds. Using the illustrations below for Step 6(c), determine if other defects are present. Once determined, record results in Step 6(c).

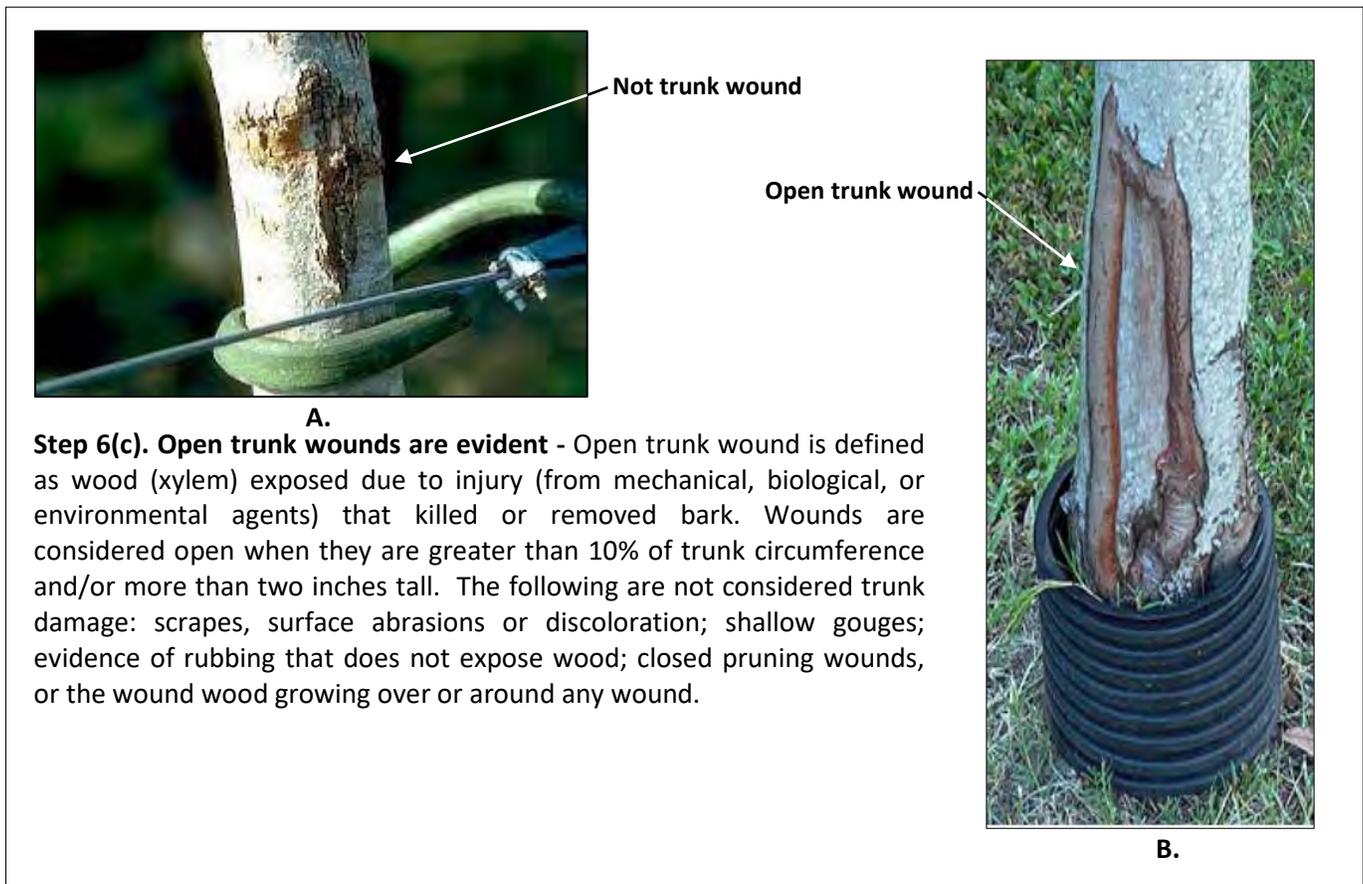
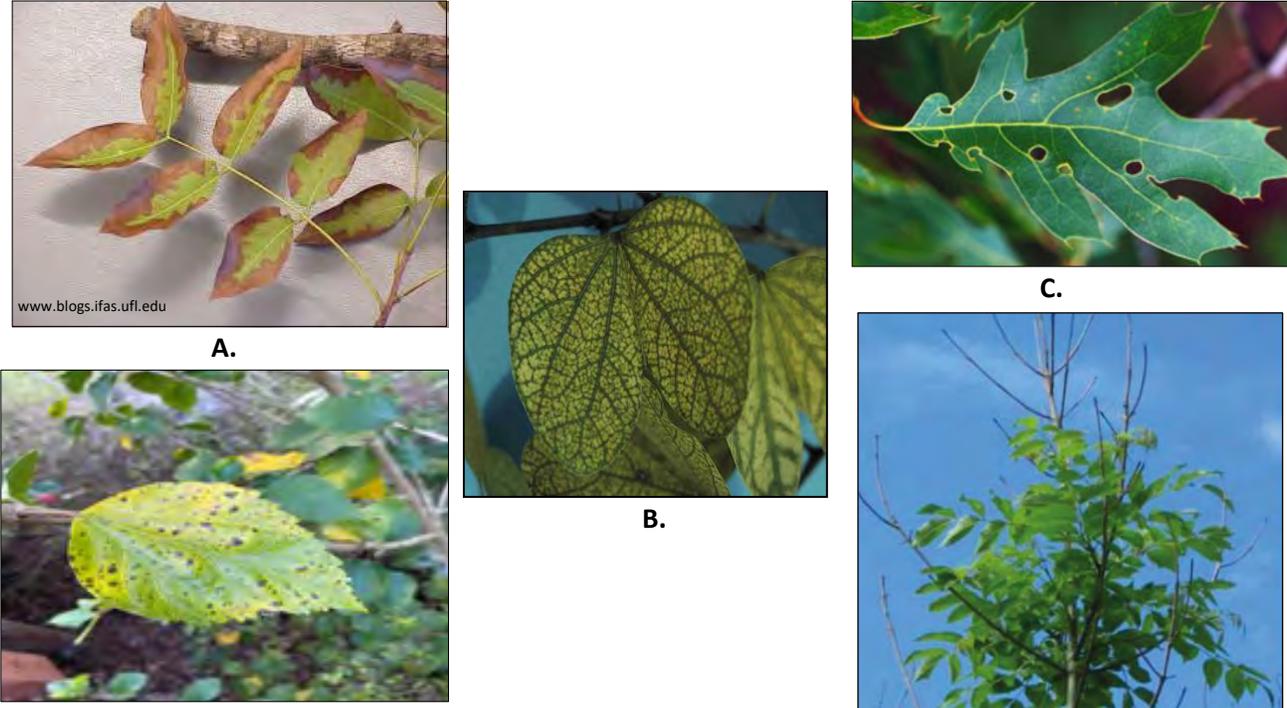


Figure 7.

Step 6 in the grading process continues with inspecting for canopy defects. Using the illustrations below for Step 6(d), determine if other defects are present. Once determined, record results in Step 6(d).



A.

B.

C.

D.

E.

Step 6(d). More than 10% of the crown exhibits any of the following:

- A. Necrosis** – Localized or general death of cells or parts of a living organism. Dead, typically, brown, foliage and/or stem tissue.
- B. Chlorosis** – A whitish or yellowish leaf discoloration caused by lack of chlorophyll. Often caused by nutrient deficiency.
- C. Pest damage** – Typical example of pest damage.
- D. Disease** – Typical example of disease.
- E. Dieback** – A condition in which the branches in the tree or crown die from the tips towards the main stem.

Figure 8.

Step 6 in the grading process continues with inspecting for canopy defects. Using the illustrations below for Step 6(e), determine if the crown is thin and sparsely foliated. Once determined, record results in Step 6(e).



A.

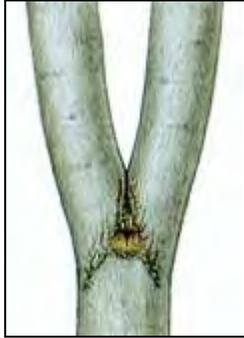
B.

Step 6(e). Crown is thin and sparsely foliated.

Remember, recently harvested trees, as well as some species through fall and early spring, are naturally thin and sparse and are not downgraded.

Figure 9.

Step 6 in the grading process continues with inspecting for canopy defects. Using the illustrations below for Step 6(f), determine if there is included bark between the trunk and a major lateral branch. Once determined, record results in Step 6(f).



A.



B.



C.



D.

Step 6(f). Included bark - Bark that becomes embedded in the union between branch and trunk or between codominant stems. Lacks wood connections, resulting in weak structure. Remember, this is not a downgrade on small-maturing trees.

Figure 10.

STEP 7. DETERMINING ROOT STRUCTURE QUALITY

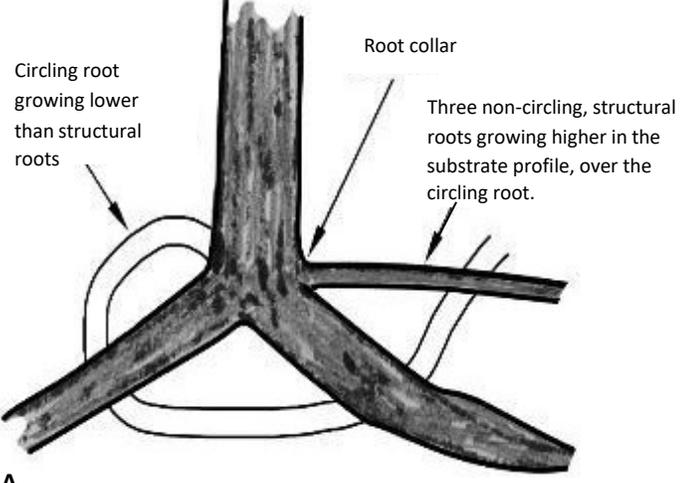
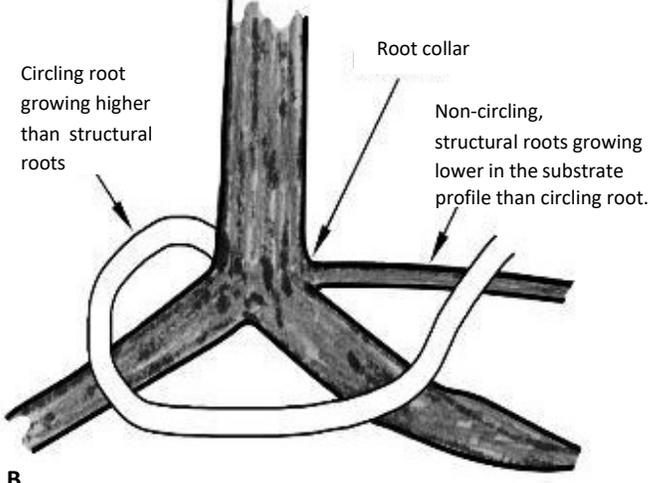
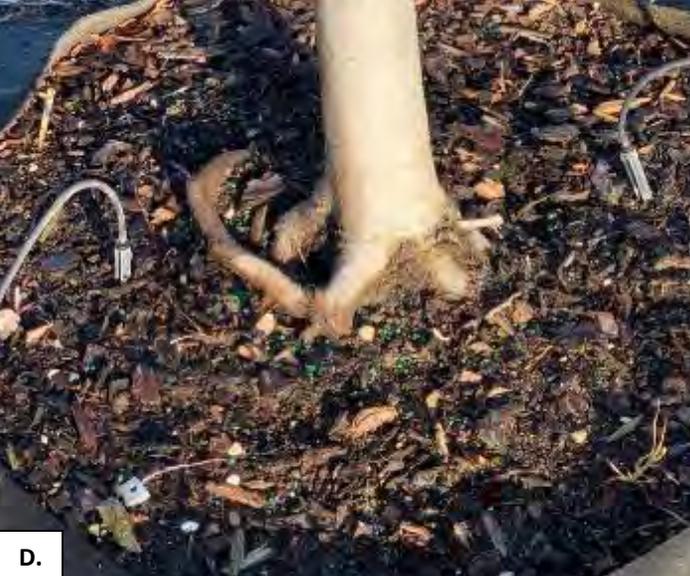
Not a Cull	Cull
 <p data-bbox="97 346 235 451">Circling root growing lower than structural roots</p> <p data-bbox="446 315 544 346">Root collar</p> <p data-bbox="511 378 763 493">Three non-circling, structural roots growing higher in the substrate profile, over the circling root.</p> <p data-bbox="89 745 121 777">A.</p>	 <p data-bbox="868 346 1006 451">Circling root growing higher than structural roots</p> <p data-bbox="1226 315 1323 346">Root collar</p> <p data-bbox="1291 378 1502 493">Non-circling, structural roots growing lower in the substrate profile than circling root.</p> <p data-bbox="852 745 885 777">B.</p>
<p data-bbox="89 850 803 1018">A and C. The presence of a circling root(s) is not a downgrade when three or more non-circling, structural roots are growing higher in the substrate profile over the circling root. These non-circling, structural roots do not need to be equally spaced around the trunk.</p> <p data-bbox="89 1060 803 1197">If there are three or more non-circling structural roots growing higher in the substrate profile and farther from the trunk than the circling root, there is no need to search for circling roots.</p>	<p data-bbox="852 850 1518 1018">B and D. A tree is a Cull when a root greater than 1/10 the trunk caliper circles more than 1/3 around the trunk in the top 1/4 of the root ball. Non-circling structural roots are growing lower in the substrate profile than the circling root(s).</p> <p data-bbox="852 1060 1518 1197">If the diameter of the circling root(s) is less than 1/3 of the trunk caliper, the circling root(s) can be cut at the point where it begins to circle. The tree would then no longer be a Cull.</p>
 <p data-bbox="89 1795 121 1827">C.</p>	 <p data-bbox="852 1795 885 1827">D.</p>

Figure 11.

TYPE 1 TREE 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'	2.5'	20"	15 gallon
2"	6'	3'	24"	25 gallon
2½"	7'	3.5'	28"	25 gallon
3"	8'	4'	32"	45 gallon
3½"	9'	5'	36"	65 gallon
4"	10'	6'	40"	100 gallon
4½"	12'	7'	44"	100 gallon
5"	14'	8'	44"	100 gallon
5½"	16'	9'	50"	200 gallon
6"	17'	10'	52"	200 gallon
7"	18'	11'	60"	300 gallon
8"	19'	12'	70"	300 gallon
9"	20'	13'	80"	670 gallon
10"	20'	14'	80"	670 gallon

Notes:

1. Trees to be graded under this matrix are listed in the Index of Trees (refer to pages 23-30).
2. Root ball depth on field-grown, B&B stock shall be at least 2/3 of the root ball diameter shown in the matrix. Increase the root ball diameter to the next larger tree size if the tree is grown in soils with a high-water table resulting in shallower root ball.
3. When determining minimum root ball size, hardened-off, field grown trees can have a caliper up to one inch larger than indicated in the matrix.
4. If the caliper does not appear in the matrix, use the next smallest caliper.
5. *American Standard for Nursery Stock (ANSI Z60.1)* designation for container size (e.g. #15, #25, etc.) can be substituted for container volume.
6. The grades and standards are not intended to be use as specifications for specific jobs or contracts. Minimum heights and/or spreads used in this document represent the size of a quality plant. They do not represent actual plants available at any given time of year or in a given markets as plant sizes available at any given time vary based on supply and demand.

TYPE 2 TREE 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'	1.5'	20"	15 gallon
2"	6'	1.5'	24"	25 gallon
2½"	7'	2'	28"	25 gallon
3"	8'	2'	32"	45 gallon
3½"	9'	2.5'	36"	65 gallon
4"	10'	3'	40"	100 gallon
4½"	12'	4'	44"	100 gallon
5"	14'	4.5'	44"	100 gallon
5½"	16'	5'	50"	200 gallon
6"	17'	6'	52"	200 gallon
7"	18'	7'	60"	300 gallon
8"	19'	8'	70"	300 gallon
9"	20'	9'	80"	670 gallon
10"	20'	10'	80"	670 gallon

Notes:

1. Trees to be graded under this matrix are listed in the Index of Trees (refer to pages 23-30).
2. Root ball depth on field-grown, B&B stock shall be at least 2/3 of the root ball diameter shown in the matrix. Increase the root ball diameter to the next larger tree size if the tree is grown in soils with a high-water table resulting in shallower root balls.
3. When determining minimum root ball size, hardened-off, field grown trees can have a caliper up to one inch larger than indicated in the matrix.
4. If the caliper does not appear in the matrix, use the next smallest caliper.
5. *American Standard for Nursery Stock (ANSI Z60.1)* designation for container size (e.g. #15, #25, etc.) can be substituted for container volume.
6. The grades and standards are not intended to be use as specifications for specific jobs or contracts. Minimum heights and/or spreads used in this document represent the size of a quality plant. They do not represent actual plants available at any given time of year or in a given markets as plant sizes available at any given time vary based on supply and demand.

TYPE 3 TREE MATRIX — SHORT/WIDE AND MULTI-TRUNK 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'	2'	20"	15 gallon
2"	6'	2.5'	24"	25 gallon
2½"	6'	3'	28"	25 gallon
3"	7'	3.5'	32"	45 gallon
3½"	8'	4'	36"	65 gallon
4"	9'	5'	40"	100 gallon
4½"	10'	6'	44"	100 gallon
5"	12'	7'	44"	100 gallon
5½"	14'	8'	50"	200 gallon
6"	14'	8'	52"	200 gallon

Notes:

1. Trees to be graded under this matrix are listed in the Index of Trees (refer to pages 23 – 30).
2. Root ball depth on field-grown, B&B stock shall be at least 2/3 of the root ball diameter shown in the matrix. Increase the root ball diameter to the next larger tree size if the tree is grown in soils with a high-water table resulting in shallower root balls.
3. When determining minimum root ball size, hardened off, field grown trees can have a caliper up to one inch larger than indicated in the matrix.
4. If the caliper does not appear in the matrix, use the next smallest caliper.
5. When grading multi-trunk, small-maturing trees, use the container size or root ball diameter, not the caliper.
6. Multi-trunk, small-maturing trees should not be downgraded if they are shorter than the minimum height in the matrix.
7. *American Standard for Nursery Stock (ANSI Z60.1)* designation for container size (e.g. #15, #25, etc.) can be substituted for container volume.
8. The grades and standards are not intended to be use as specifications for specific jobs or contracts. Minimum heights and/or spreads used in this document represent the size of a quality plant. They do not represent actual plants available at any given time of year or in a given markets as plant sizes available at any given time vary based on supply and demand.

FLORIDA FANCY TREE PHOTO EXAMPLES

A Florida Fancy may have one dominant trunk or be multi-trunk. In each photo shown below, the crown uniformity represents a Florida Fancy.



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 #1 TREE PHOTO EXAMPLES

A Florida #1 is downgraded for having two nearly equal trunks in the top half of the tree (refer to Photos 7-11) or for having a narrow crown (refer to Photo 12). In each photo below, the crown uniformity represents a Florida fancy.



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 #2 TREE PHOTO EXAMPLES

A Florida #2 may represent a variety of downgrades including two nearly equal trunks in the lower half of the tree, a dogleg in the clear trunk, or a non-uniform crown. In the photos below, several, but not all downgrades are represented.



Type 1 Matrix: live oak



Type 1 Matrix: black olive



Type 1 Matrix: red maple



Type 1 Matrix: sweetgum



Type 4 Matrix: Chinese elm



Type 3 Matrix: loblolly bay

INDEX OF TREES LISTED BY COMMON NAME AND MATRIX TYPE

Step 1 of the tree grading process begins with determining the matrix type of the tree. In the index below, locate the species of tree being graded and record the corresponding matrix in Step 1.

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

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

Matrix type	Common Name	Scientific Name
3	magnolia, saucer	<i>Magnolia x soulangeana</i>
1	magnolia, southern	<i>Magnolia grandiflora</i>
1	mahogany	<i>Swietenia mahagoni</i>
3	mango	<i>Mangifera indica</i> & cvs.
3	mangrove, black	<i>Avicennia germinans</i>
1	maple, Florida	<i>Acer floridanum</i>
3	maple, Japanese	<i>Acer palmatum</i>
1	maple, red	<i>Acer rubrum</i> & cvs.
1	maple, silver	<i>Acer saccharinum</i>
1	mastic tree	<i>Sideroxylon foetidissimum</i>
1	oak, bluff	<i>Quercus austrina</i>
1	oak, laurel	<i>Quercus laurifolia</i>
1	oak, live	<i>Quercus virginiana</i>
1	oak, pin	<i>Quercus palustris</i>
1	oak, post	<i>Quercus stellata</i>
1	oak, sand live	<i>Quercus geminata</i>
1	oak, sawtooth	<i>Quercus acutissima</i>
1	oak, Shumard	<i>Quercus shumardii</i>
1	oak, southern red	<i>Quercus falcata</i>
1	oak, swamp-chestnut	<i>Quercus michauxii</i>
1	oak, water	<i>Quercus nigra</i>
1	oak, white	<i>Quercus alba</i>
1	oak, willow	<i>Quercus phellos</i>
3	olive, black	<i>Bucida buceras</i>
3	olive, spiny black	<i>Bucida molinetii</i>
1	paradise tree	<i>Simarouba glauca</i>
3	pigeon plum	<i>Coccoloba diversifolia</i>
2	pine	<i>Pinus</i> spp.
3	pine, screw	<i>Pandanus utilis</i>
3	pistache, Chinese	<i>Pistacia chinensis</i>
3	pitch-apple	<i>Clusia rosea</i>
3	plum, Chickasaw	<i>Prunus angustifolia</i>
3	plum, pigeon	<i>Coccoloba diversifolia</i>
2	podocarpus, Japanese yew	<i>Podocarpus macrophyllus</i>
2	podocarpus, nagi	<i>Podocarpus nagi</i>
2	podocarpus, weeping	<i>Podocarpus gracillior</i>
3	poinciana, dwarf	<i>Caesalpinia pulcherrima</i>
1	poinciana, royal	<i>Delonix regia</i>
1	poinciana, yellow	<i>Peltophorum pterocarpum</i>
1	red-bay	<i>Persea borbonia</i>
3	redbud	<i>Cercis canadensis</i>
1	river birch	<i>Betula nigra</i> & cvs.

Matrix type	Common Name	Scientific Name
3	rubber tree, Indian	<i>Ficus elastica</i>
1	satinleaf	<i>Chrysophyllum oliviforme</i>
3	screw-pine	<i>Pandanus utilis</i>
3	sea-grape	<i>Coccoloba uvifera</i>
1	silk-cotton tree, red	<i>Bombax ceiba</i>
3	silver buttonwood	<i>Conocarpus erectus</i>
3	small leaf clusia	<i>Clusia guttifera</i>
3	spiny black-olive	<i>Bucida molinetii</i>
3	stopper	<i>Eugenia spp.</i>
1	sweet gum	<i>Liquidambar styraciflua & cvs.</i>
1	sycamore	<i>Platanus occidentalis</i>
3	syzygium	<i>Syzygium spp.</i>
3	tabebuia	<i>Tabebuia spp.</i>
1	tamarind	<i>Tamarindus indica</i>
1	tamarind, wild	<i>Lysiloma latisiliquum</i>
1	tropical-almond	<i>Terminalia catappa</i>
1	tulip tree, African	<i>Spathodea campanulata</i>
1	tulip-poplar	<i>Liriodendron tulipifera</i>
1	tupelo	<i>Nyssa ogeche</i>
3	verawood	<i>Bulnesia arborea</i>
3	wax-myrtle	<i>Myrica cerifera</i>
1	weeping willow	<i>Salix babylonica</i>
3	wild-tamarind	<i>Lysiloma latisiliquum</i>

INDEX OF TREES LISTED BY SCIENTIFIC NAME AND MATRIX TYPE

Step 1 of the tree grading process begins with determining the matrix type of the tree. In the index below, locate the species of tree being graded and record the corresponding matrix in Step 1.

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

Matrix Type	Scientific Name	Common Name*
1	<i>Delonix regia</i>	poinciana, royal
3	<i>Elaeocarpus decipens</i>	Japanese blueberry
3	<i>Eriobotrya japonica</i>	loquat
2	<i>Eucalyptus</i> spp.	eucalyptus
3	<i>Eugenia</i> spp.	stopper
1	<i>Ficus elastica</i>	Indian-rubber tree; rubber tree, Indian
3	<i>Ficus rubiginosa</i>	fig, rusty
3	<i>Filicium decipiens</i>	Japanese fern tree
1	<i>Fraxinus</i> spp.	ash
2	<i>Ginkgo biloba</i> & cvs.	ginkgo
2	<i>Gordonia lasianthus</i>	bay, loblolly
3	<i>Guaiacum sanctum</i>	lignum-vitae
3	<i>Ilex</i> 'Nellie R. Stevens'	holly, Nellie R. Stevens
2	<i>Ilex cassine</i> & vars. & cvs.	holly, dahoon
1	<i>Ilex opaca</i>	holly, American
3	<i>Ilex vomitoria</i>	holly, yaupon
2	<i>Ilex vomitoria</i> 'Pendula'	holly, weeping yaupon
2	<i>Ilex x attenuata</i> 'East Palatka'	holly, East Palatka
2	<i>Ilex x attenuata</i> 'Fosteri'	holly, Foster
2	<i>Ilex x attenuata</i> 'Savannah'	holly, Savannah
2	<i>Ilex x attenuata</i> 'Eagleston'	holly, Eagleston
1	<i>Jacaranda mimosifolia</i>	jacaranda
2	<i>Juniperus silicicola</i>	cedar, southern red
2	<i>Juniperus virginiana</i>	cedar, eastern red
1	<i>Koelreuteria elegans</i>	golden rain tree
1	<i>Krugiodendron ferreum</i>	black ironwood
3	<i>Lagerstroemia</i> cvs.	crape-myrtle
3	<i>Lagerstroemia speciosa</i>	crape-myrtle, queen
3	<i>Ligustrum japonicum</i>	ligustrum, wax privet
1	<i>Liquidambar styraciflua</i> & cvs.	sweet gum
1	<i>Liriodendron tulipifera</i>	tulip-poplar
3	<i>Litchi chinensis</i>	lychee
1	<i>Lysiloma latisiliquum</i>	wild-tamarind; tamarind, wild
1	<i>Magnolia grandiflora</i>	magnolia, southern
2	<i>Magnolia grandiflora</i> 'Bracken's Brown Beauty'	'Bracken's Browns Beauty' magnolia
2	<i>Magnoliagrاندiflora</i> 'Little Gem'	magnolia, 'Little Gem'
2	<i>Magnolia virginiana</i>	bay, sweet
3	<i>Magnolia x soulangeana</i>	magnolia, saucer
3	<i>Malpighia emarginata</i>	Barbados-cherry; cherry, Barbados
3	<i>Mangifera indica</i> & cvs.	mango
3	<i>Myrica cerifera</i>	wax-myrtle
3	<i>Noronhia emarginata</i>	Madagascar olive
1	<i>Nyssa ogeche</i>	tupelo
1	<i>Nyssa sylvatica</i>	black tupelo

Matrix Type	Scientific Name	Common Name*
2	<i>Ostrya virginiana</i>	American hophornbeam
3	<i>Pandanus utilis</i>	pine, screw
3	<i>Pandanus utilis</i>	screw-pine
3	<i>Parkinsonia aculeata</i>	Jerusalem thorn
1	<i>Peltophorum pterocarpum</i>	poinciana, yellow
1	<i>Persea americana</i>	avocado
1	<i>Persea borbonia</i>	red-bay
2	<i>Pinus spp.</i>	pine
3	<i>Piscidia piscipula</i>	Jamaican dogwood
3	<i>Pistacia chinensis</i>	pistache, Chinese
1	<i>Platanus occidentalis</i>	sycamore
3	<i>Platycladus orientalis</i>	arborvitae
3	<i>Plumeria rubra</i>	frangipani
2	<i>Podocarpus gracillor</i>	podocarpus, weeping
2	<i>Podocarpus macrophyllus</i>	podocarpus, Japanese yew
2	<i>Podocarpus nagi</i>	podocarpus, nagi
1	<i>Populus spp.</i>	cottonwood
3	<i>Prunus angustifolia</i>	plum, Chickasaw
3	<i>Psidium guajava</i>	guava
1	<i>Quercus acutissima</i>	oak, sawtooth
1	<i>Quercus alba</i>	oak, white
1	<i>Quercus austrina</i>	oak, bluff
1	<i>Quercus falcata</i>	oak, southern red
1	<i>Quercus geminata</i>	oak, sand live
1	<i>Quercus laurifolia</i>	oak, laurel
1	<i>Quercus michauxii</i>	oak, swamp-chestnut
1	<i>Quercus nigra</i>	oak, water
1	<i>Quercus palustris</i>	oak, pin
1	<i>Quercus phellos</i>	oak, willow
1	<i>Quercus shumardii</i>	oak, Shumard
1	<i>Quercus stellata</i>	oak, post
1	<i>Quercus virginiana</i>	oak, live
1	<i>Salix babylonica</i>	weeping willow
1	<i>Sideroxylon foetidissimum</i>	mastic tree
1	<i>Simarouba glauca</i>	paradise tree
1	<i>Sophora japonica</i>	Japanese pagoda tree
1	<i>Spathodea campanulata</i>	African tulip tree; tulip tree, African
1	<i>Swietenia mahagoni</i>	mahogany
3	<i>Syzygium spp.</i>	syzygium
3	<i>Tabebuia spp.</i>	tabebuia
1	<i>Tamarindus indica</i>	tamarind
2	<i>Taxodium ascendens</i>	cypress, pond
2	<i>Taxodium distichum</i>	bald-cypress; cypress, bald
3	<i>Tecoma stans</i>	elder, yellow
1	<i>Terminalia catappa</i>	tropical-almond; almond, tropical

Matrix Type	Scientific Name	Common Name*
3	<i>Tibouchina urvilleana</i>	glorybush
1	<i>Tilia americana</i>	basswood
1	<i>Ulmus alata</i>	elm, winged
1	<i>Ulmus americana</i>	elm, American
2	<i>Ulmus parvifolia</i>	elm, lace bark
2	<i>X Cupressocyparis leylandii</i>	cypress, Leyland
1	<i>Tilia americana</i>	basswood

INDEX OF SMALL-MATURING TREES

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

Note: This list is not inclusive of all small-maturing trees. Other trees can be considered small-maturing based on naturally remaining 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: Secondary shoot or stem generally smaller than the trunk and/or leader.

Branch Stub: The typically short portion of a branch left beyond the collar following a pruning cut.

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. For multi-trunk trees, caliper equals the sum of all trunk diameters.

Central Leader: The stem that grows in the approximate center of the tree extending at least 90% of the height of the tree.

Chlorosis: A lightness or bleaching (typically yellowing) of green color in the foliage unlike the normal color. This indicates that the plant may be nutrient deficient 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.

Circling Root: A root larger than 1/10 trunk diameter circling more than 1/3 trunk diameter in upper 1/4 of root ball.

Clear Trunk (CT): Trees grown in such a way that a portion of the trunk is exposed below the crown so that the bottom of the crown is defined. The portion of exposed trunk can vary due to species, as well as grower and market preferences (refer to Appendix C, page 43).

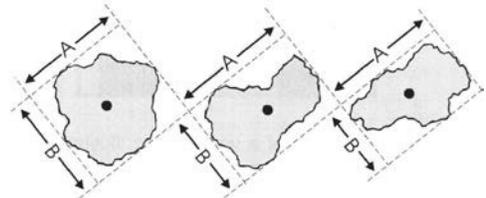
Container: A vessel made from plastic, fabric, wood or other material held above ground or partially in the ground that holds substrate and a root system.

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 improve crown structure.

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.



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

Diameter at Breast Height (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 Figure 5). If there is a dogleg in the clear trunk portion, the tree is graded Florida # 2. If the dogleg is in the crown portion of the tree, the tree is not downgraded.

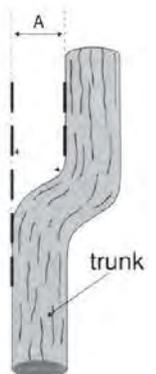
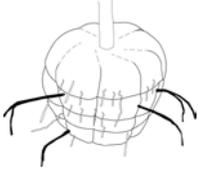


Figure 5. The distance 'A' cannot be larger than the trunk diameter.

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.

Hardened-off Trees: Field-grown trees that are balled and burlapped in the nursery with visible roots growing through the burlap.



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.

Leader: The portion of the trunk that extends into the canopy of the tree.

Major Lateral Branches: Branches growing from the trunk that is among the largest on the tree.

Multi-Trunk (MT): Trees grown with two or more trunks emerging from close to ground or at ground level.

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.

Root Collar: The point where the top-most structural root emerges from the trunk.

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

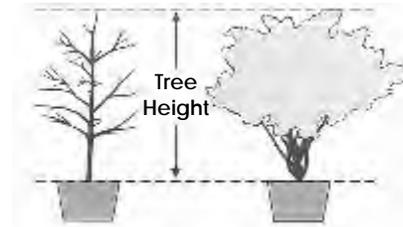
Specialty Trees: A formal, man-manipulated plant form, either tree or shrub, developed and maintained by frequent clipping and shearing. Such forms include sheared pyramids, espaliers, columns, animal topiaries, large bonsai and other special shapes. Grades and Standards do not apply to specialty trees.

Standard (STD): Trees grown with a single trunk that extends from the root ball to at least the bottom of the crown.

Structural Root: Roots among the largest on the tree.

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 soil to the top-most portion of the tree.



Measuring tree height.

Trunk: The main woody part of a tree beginning at the ground up to the crown from which primary branches grow.

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 wound wood growing over or around any wound.

Vitality: Ample growth as a result of cultural conditions.

Vigor: Ample growth as a result of genetic capacity.

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

APPENDIX A - BEST MANAGEMENT PRACTICES (BMP)

Appendix A is not part of the tree grading process.

Introduction

The Best Management Practices (BMP) contained within this appendix are NOT part of the tree 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: Tree Pruning Before Planting, At Planting, or After Planting

Trees may be delivered with a dominant leader, but the one leader is not to the top of the tree. Florida Fancy and Florida #1 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 contract documents.

Illustrations A, B, and C below are for the very simple case of two stems competing with the dominant 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.

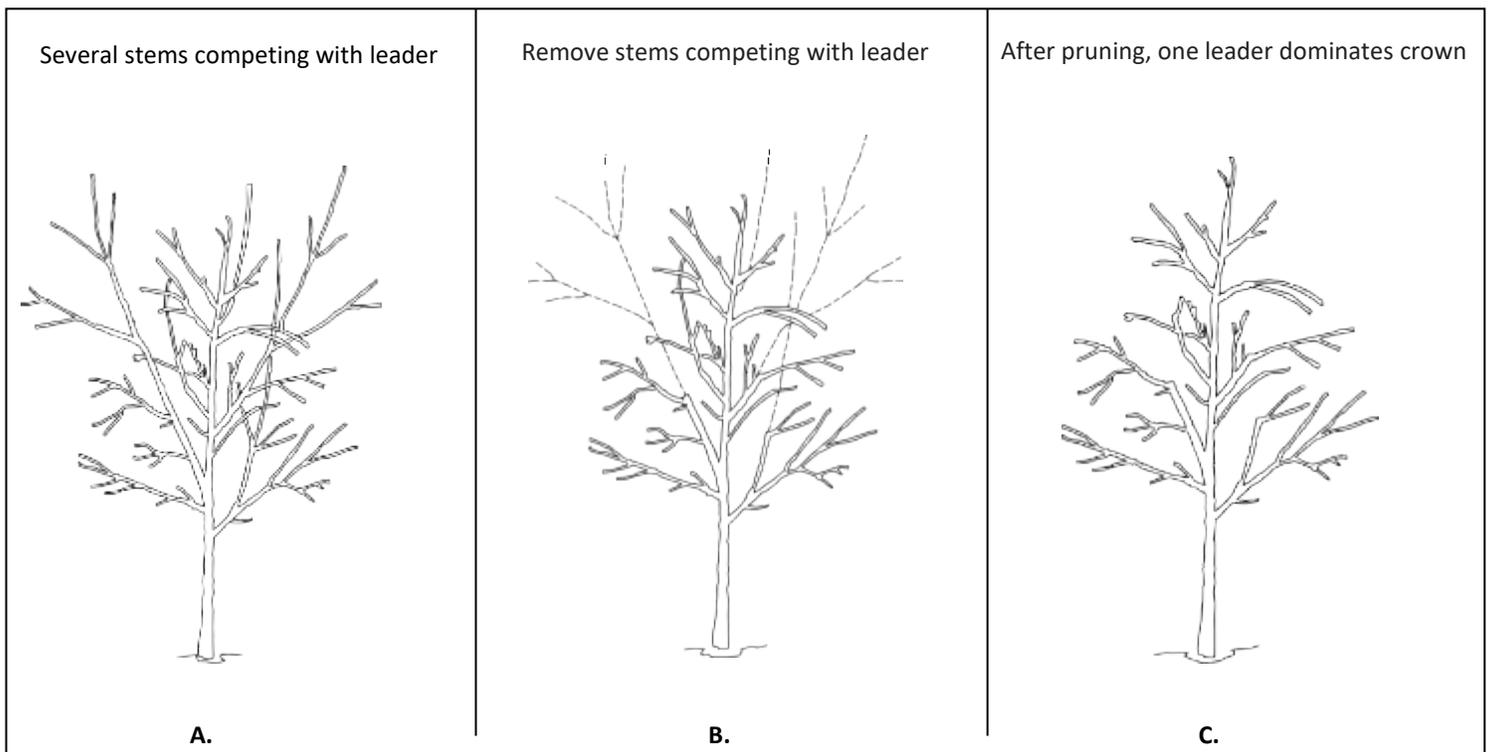


Figure 12.

Part Two: Correcting Tree Root Ball

The 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 flare 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 to bring the root collar 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.

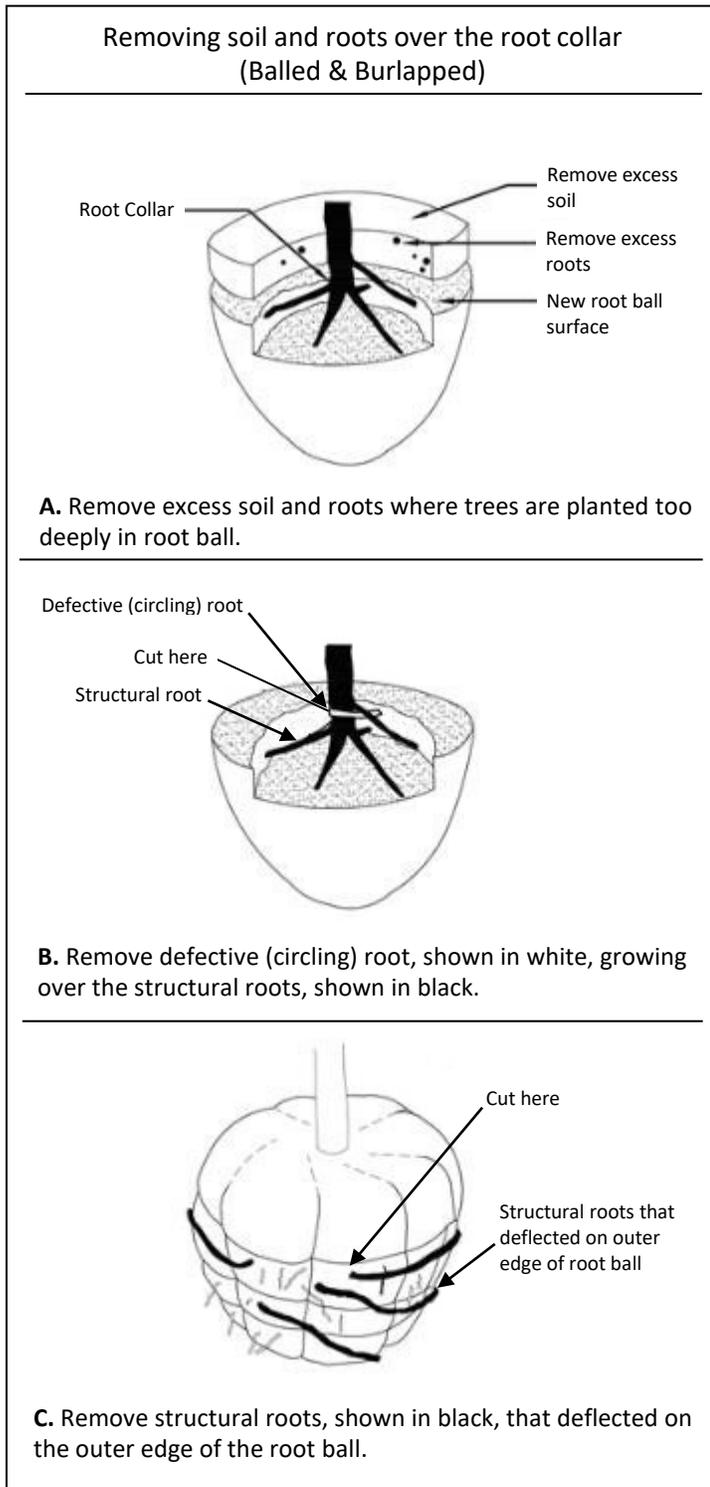


Figure 13.

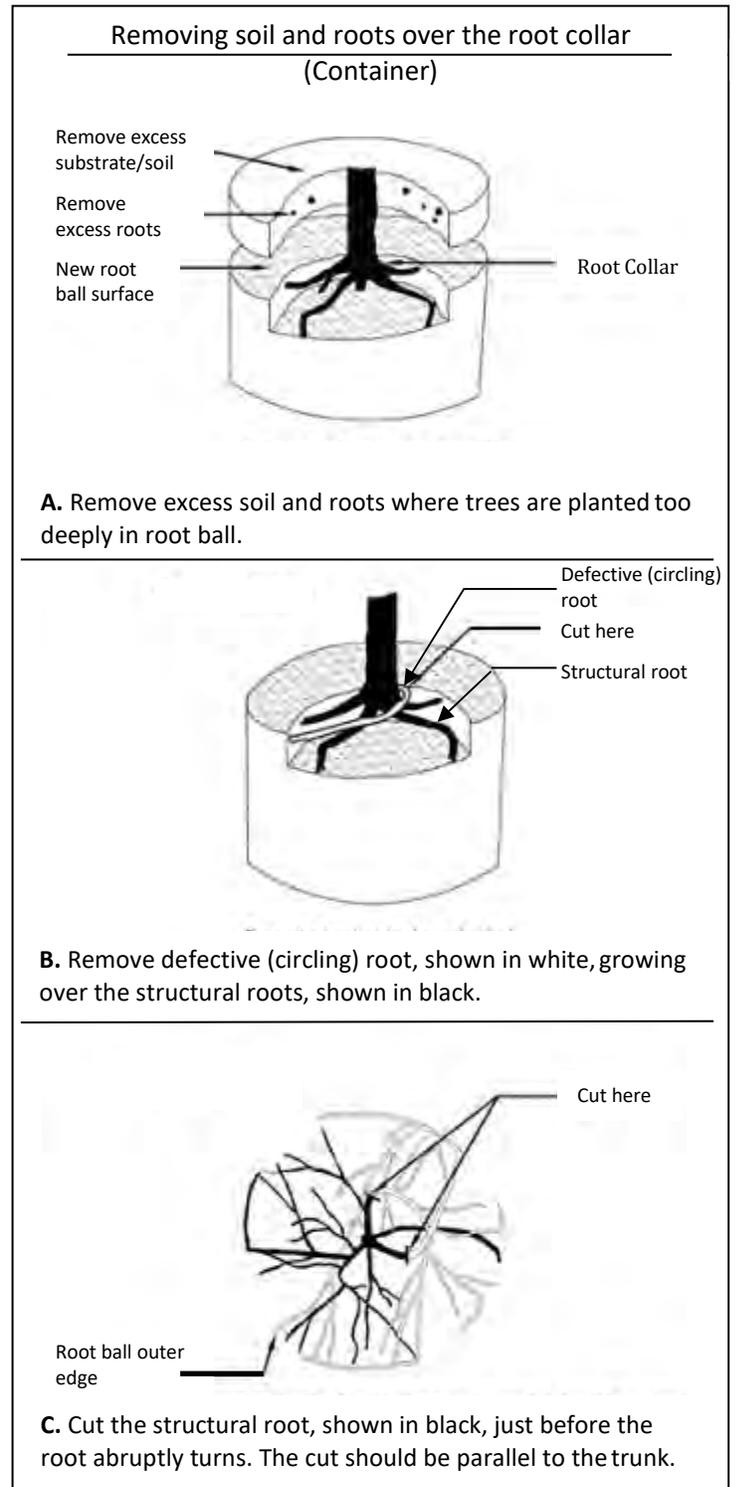


Figure 14.

Properly grown trees, regardless of production method, will have roots growing up, down, and around the outer edge of the root ball. At planting time, woody, non-fibrous roots can be selectively removed at the point before the root turns abruptly. An efficient method of removing these roots is to shave the outer one or two inches of the root ball (refer to Figure 15).

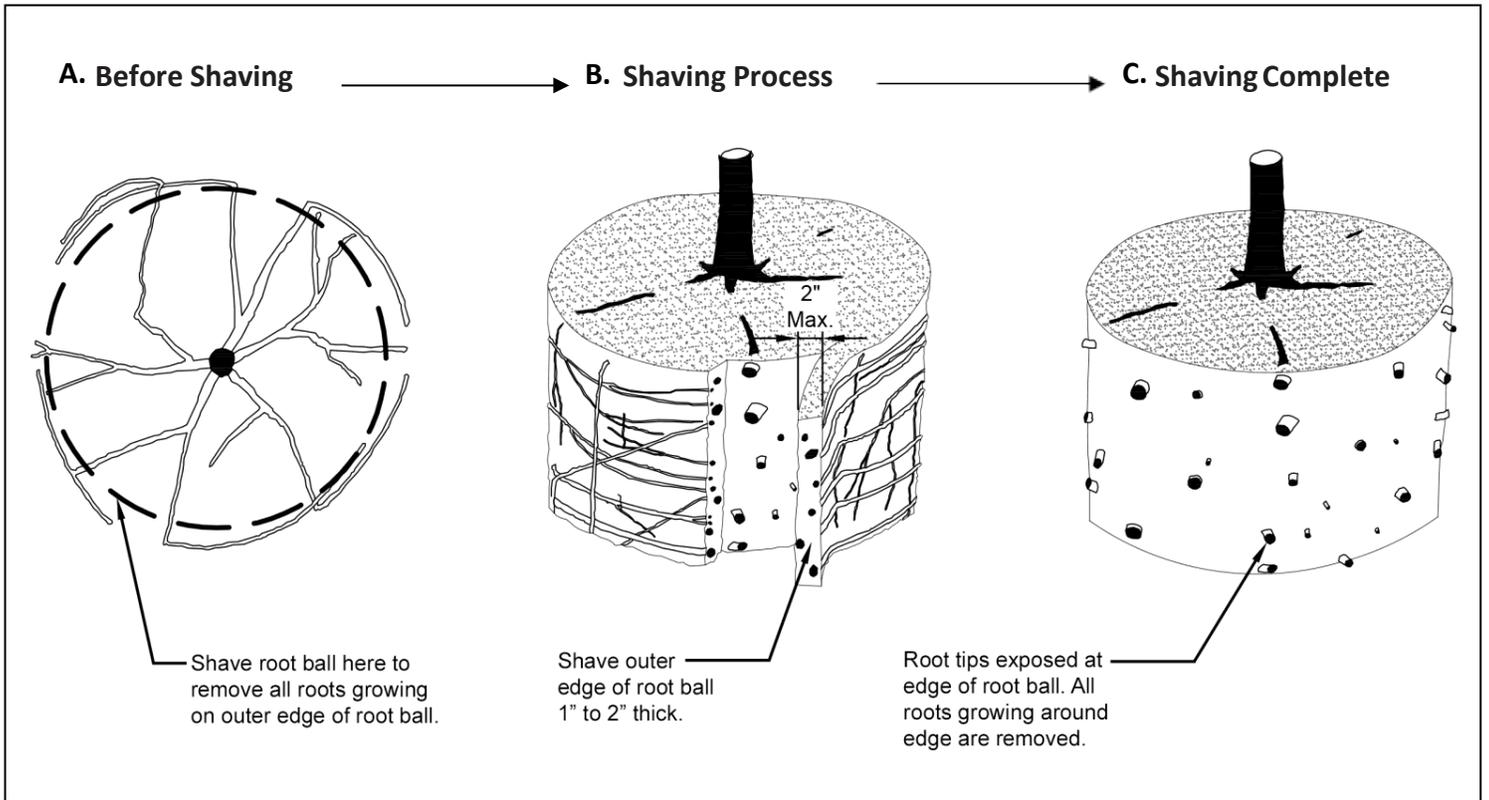


Figure 15.

Part Three: Tree Planting Detail

The generalized planting detail presented below is designed for a well-drained, appropriate soil based on the geographical location of the tree. This figure can be modified with written specifications and details as needed.

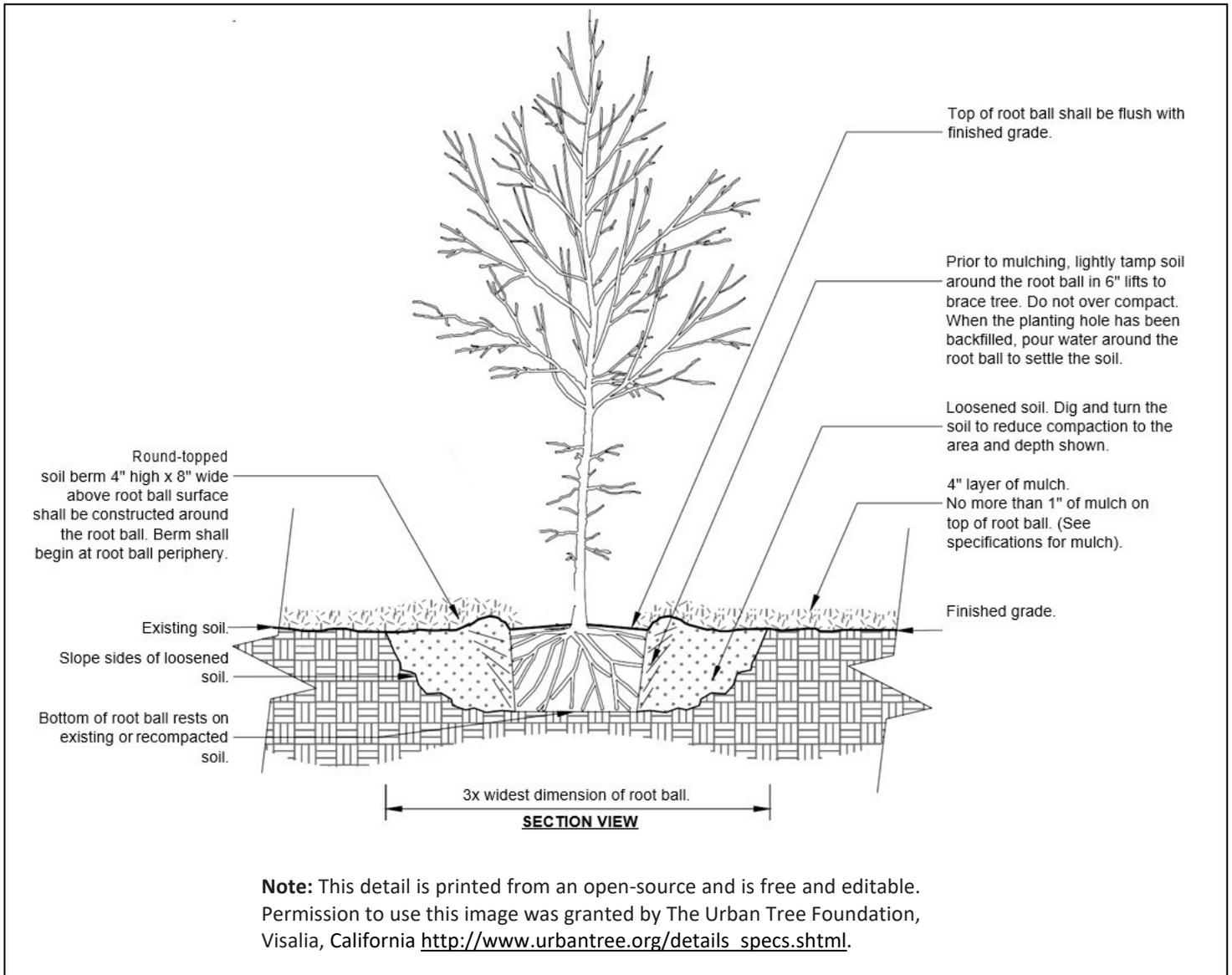


Figure 16.

Guidelines for Planting Procedures

Containers (plastic, fabric, wood, etc.) and other non-biodegradable root ball coverings such as weed cloth liners and plastic wrap must be removed from trees at planting. Wire baskets and strapping on top of the root ball (that does not wrap around the trunk) do not need to be removed at planting as this helps to keep the root ball solid and intact during establishment. All root ball strapping and staking materials installed at planting should be removed or adjusted within the first year after planting. If the root ball strapping and staking materials are not removed or adjusted, they can girdle or damage the tree (refer to Appendix B, Photos 31-34, page 41).

Part Four: Irrigating Tree After Planting and During Establishment

Regular irrigation after planting is essential for survival and establishment of most 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 which is essential for establishment. Irrigation can help maintain and encourage a dominant leader in the tree crown on large-maturing shade trees. Trees that are under-irrigated during the establishment period can die back, and often develop, low, nearly equal trunks 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 saturated on the irrigation day.
2. When irrigating for vitality, start with every other day 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.
4. These guidelines are based on the research linked at [Planting - Landscape plants - Edward F. Gilman - UF/IFAS \(ufl.edu\)](#): Beeson and Gilman 1992; Gilman et al. 1994; Gilman and Beeson 1996; Gilman et al. 1996; Gilman 2001; Gilman et al. 2002; Harris and Gilman 1993; Watson and Himelick 1982.

Figure 17.

APPENDIX B - TREE GRADING PHOTO EXAMPLES



Photo 19. Live oak in winter.



Photo 20. Live oak in summer.



Photo 21. Magnolia in winter.



Photo 22. Magnolia in summer.



Photo 23. Crape myrtle in winter.

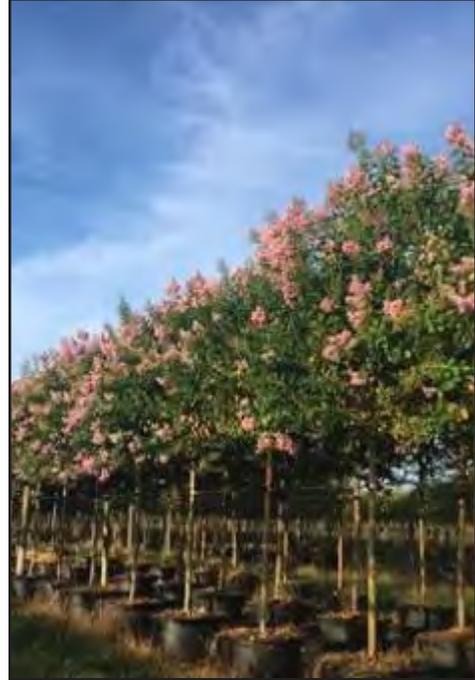


Photo 24. Crape myrtle in summer.



Photo 25. Florida #1 live oak.



Photo 26. Florida #1 live oak.



Photo 27. Florida #2 live oak.



Photo 28. A dogleg in trunk is not a downgrade when it is in the crown of the tree.



Photo 29. There is included bark in this branch union. The branch bark ridge is not visible because it is included inside the union. The union with included bark is shaped like the letter V.



Photo 30. There is no included bark in this branch union. The branch bark ridge is clearly visible in the union as a raised line of bark tissue. The union with no included bark is shaped like the letter U.



Photo 31. Synthetic rope has been left on the wire basket loop and is girdling the tree.



Photo 32. Although infrequently used, synthetic burlap is not recommended because the roots that do grow through are not able to sufficiently expand in diameter to remain vigorous. Because of this, they break off very easily due to lack of wood development through the synthetic burlap.



Photo 33. The staking and guying material was not removed or adjusted one year after planting and is now girdling the stem. This is an example of poor maintenance.



Photo 34. The staking and guying material was not removed or adjusted one year after planting and is now damaging the tree. This is an example of poor maintenance.



Photo 35. A reduction cut is made to slow growth on the left stem forcing more growth into the stem on the right.



Photo 36. A reduction cut on the top left stem slows the growth on that stem which subordinates it to the central leader.



Photo 37. Acceptable heading cut is up to 1/10 of trunk caliper. With this heading cut, the tree cannot be a Florida Fancy until a new leader grows with an intact terminal bud. The tree as shown in Photo 37 is a Florida #1 grade.



Photo 38. The tip of the leader that is not more than 1/10 of the trunk caliper can be cut. A tree with this heading cut can meet Florida #1 grade. This is a close-up of the tree shown in photo 37.

APPENDIX C - TREE FORM EXAMPLES

Clear Trunk (CT): Trees grown in such a way that a portion of the trunk is exposed below the crown so that the bottom of the crown and the trunk are clearly defined. The amount of exposed trunk can vary due to species, grower preference, contract specification and market demands. Other terms that can be used synonymously with clear trunk include CT, tree form, and limbed-up. Note that clear trunk trees can be either standard (single trunk) or multi-trunk.

Full To Ground (FTG): Trees grown in such a way that the crown extends from the top of the tree down to the ground, or close to the ground, with very little or no part of the trunk(s) left intentionally exposed. Other terms used synonymously with full-to-the-ground trees are FTG, full to the pot (FTP), full to the base (FTB), bush form, and shrub form. Note that full-to-the-ground trees can either be standard (single trunk) or multi-trunk.

Standard (STD): Trees grown in such a way where a single trunk extends from the root ball up to at least the bottom of the crown. The term 'standard' is commonly misused to refer to a clear trunk tree, however, a standard tree can be a clear trunk or full-to-the-ground tree.

Multi-Trunk (MT): Trees grown in such a way where two or more trunks emerge from the ground in close proximity to each other. Multi-trunk trees can either be clear trunk or full-to-the-ground.

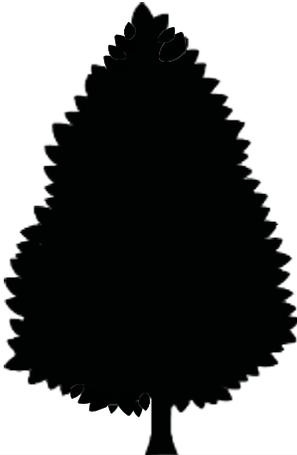
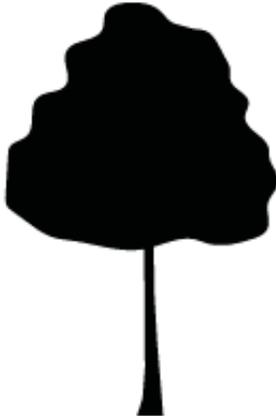
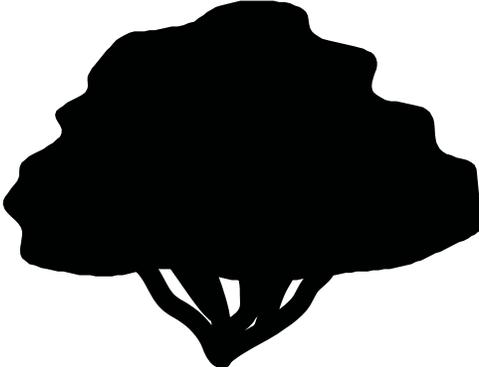
	Full to Ground (FTG)	Clear Trunk (CT)
Standard (STD)	<p>A.</p> 	<p>B.</p> 
Multi-Trunk (MT)	<p>C.</p> 	<p>D.</p> 

Figure 18.

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PALMS

PALMS

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INTRODUCTION TO PALM GRADING

Florida's Grades & Standards for Palms has two separate and distinct sections; Grading and Specifying.

Florida Grades and Standards for Palms is constructed for those who are tasked with the responsibility of grading palms intended for landscape installation. The grading process is based on criteria used to evaluate the current health and potential for the successful reestablishment of palms. Grading is performed by examining the leaves, trunk and root ball. **The grade of the palm is assigned at the time of delivery.** The grading of palms is specific to this application and time frame. This approach allows contractors, municipalities, inspectors and others charged with grading palms, to grade objectively using benchmarks to identify quality-grown palms with health characteristics that have the potential for transplant and reestablishment success.

The Specifying Section offers standardized definitions and a process for palm specifying to facilitate better communication between landscape professionals. A specifier may include additional design and contractual specifications such as, maintaining a grade over time, or specific palm forms and dimensional characteristics. Specifications are not used in the grading process.

GLOSSARY OF PALM GRADING TERMINOLOGY

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

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.



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

Container Grown Palm: Palms which are grown in a container where the entire root system is fully contained. These palms are not subject to the minimum root ball measurement standards.

Cull: A non-gradable palm with one or more eliminating factors or a palm which fails to meet the minimum root ball measurement and/or minimum leaf count or quality for its size and species required for a Florida #2 grade.

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

Crownshaft species have an increased potential for damage to the vascular tissue caused by depressions.



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.



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 leaf 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 #1, or Florida #2.

Juvenile Palms: Any immature palm which has not reached the developmental stage of growth necessary for evaluation in accordance with Grades and Standards.

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

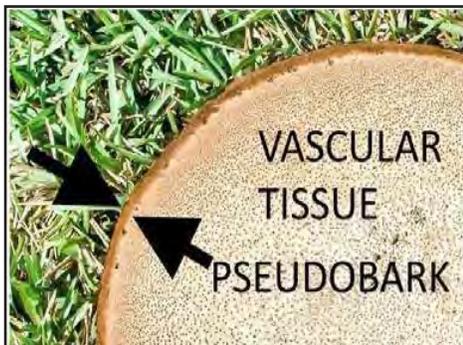


Necrosis: Desiccated plant tissue typically but not necessarily brown, tan or gray in color.

Overall Height: The highest point in the canopy measured from the top of root ball to the natural position of the last fully emerged (all leaflets are fully expanded) leaf.

Primary Trunk: Trunks $\frac{3}{4}$ 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;

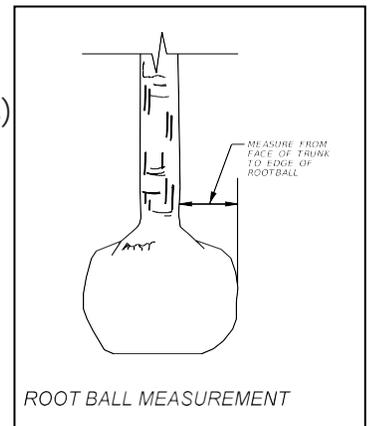


e.g., *Phoenix dactylifera*) that are the result of offshoot or pup removal. These scars present no health risk to the palm.

Regenerated Palms: Palms that have been collected/dug and maintained until new white or cream colored root growth is visible around a minimum of 75% of the perimeter of the root ball. The new roots are held within a containment barrier. Roots which penetrate or escape the barrier cannot be included in this percentage. (This requirement is a standard for grading regenerated cabbage palms as detailed in Table 1.)

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 occurring vertical expansion cracks. These present no health risk to the palm when less than one-inch deep.

PALM GRADES

Florida Fancy: A palm with no eliminating factors as determined in Step 1 and meets the requirements for a grade of Florida Fancy in accordance with Table 1 (Step 2).

Florida #1: A palm with no eliminating factors as determined in Step 1 and only meets the requirements for a grade of Florida No. 1 in accordance with Table 1 (Step 2).

Florida #2: A palm with no eliminating factors as determined in Step 1 and only meets the requirements for a grade of Florida No.2 in accordance with Table 1 (Step 2).

STEPS FOR DETERMINING PALM GRADE

Step 1. Examine the palm using the list of eliminating factors. If there are no eliminating factors, proceed to Step 2.

Eliminating factors are severe problems that decrease the chance for success/survival in the new site. If one or more statements is true, the palm is not gradable.

Eliminating Factors

a) Evidence of palm weevils or symptoms of lethal diseases such as Fusarium wilt, phytoplasma diseases, Ganoderma butt rot, Thielaviopsis trunk rot or Phytophthora bud rot.

b) Wood boring insect damage.

c) Depressions or other trunk damage showing or indicative of vascular tissue damage. Excluding pup scars in clonally produced palms, pesticide injection sites, and naturally occurring vertical fissures less than one inch in depth.

d) Extreme succulence.

e) Naturally occurring vertical fissures exceeding one inch in depth.

Step 2. Refer to Table 1 to assign the palm grade based on the minimum leaf count, leaf quality and root ball measurement of the species being graded. Failure to meet the minimum requirements for root ball measurement or Florida No. 2 leaf count and/or quality in Table 1 renders the palm a cull.

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 measurement (additional requirements for Regenerated Cabbage Palms) 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 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.

Table 1.

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

<i>Dypsis lastelliana</i>	Teddy Bear Palm	8	6	5	6 at any OA		
<i>Dypsis lutescens</i>	Areca Palm	6	5	4	4 at any OA		
<i>Heterospathe elata</i>	Sagisi Palm	6	5	4	6 at any OA		
<i>Hyophorbe lagenicaulis</i> (3)	Bottle Palm	4	3	2	6 at any OA		
<i>Hyophorbe verschafeltii</i>	Spindle Palm	4	3	2	6 at any OA		
<i>Latania loddigesii</i>	Blue Latan Palm	6	5	4	6 at any OA		
<i>Latania lontaroides</i>	Red Latan Palm	6	5	4	6 at any OA		
<i>Leucothrinax morrisii</i>	Key Thatch Palm	8	6	5	6 at any OA		
<i>Livistona australis</i>	Australian Fan Palm	10	8	6	≤15 FT=6		>15 FT=9
<i>Livistona chinensis</i>	Chinese Fan Palm	10	8	6	≤20 FT=6		>20 FT=9
<i>Livistona decora</i> (formerly <i>L. decipiens</i>)	Ribbon Palm	25	20	15	≤20 FT=6		>20 FT=9
<i>Livistona nitida</i>	Carnavon Gorge	25	20	15	≤20 FT=6		>20 FT=9
<i>Livistona saribus</i>	Taraw Palm	20	16	12	≤20 FT=6		>20 FT=9
<i>Phoenix canariensis</i>	Canary Island Date Palm	15	12	9	≤12 FT=6	>12 FT ≤ 20 FT=9	>20 FT=12
<i>Phoenix dactylifera</i> (Medjool)	Date Palm	22	18	14	≤26 FT=6	>26 FT ≤ 39 FT=9	>39 FT=12
<i>Phoenix dactylifera</i> (Zahidi)	Date Palm	22	18	14	≤26 FT=6	>26 FT ≤ 39 FT=9	>39 FT=12
<i>Phoenix dactylifera</i> (Deglet Noor)	Date Palm	20	16	12	≤26 FT=6	>26 FT ≤ 39 FT=9	>39 FT=12
<i>Phoenix reclinata</i>	Senegal Date Palm	12	10	7	≤20 FT=6	>12 FT ≤ 20 FT=9	>20 FT=9
<i>Phoenix roebelenii</i>	Pygmy Date Palm	25	20	15	6 at any OA		
<i>Phoenix sylvestris</i>	Wild Date Palm	40	32	24	≤15 FT=6	>15 FT ≤ 25 FT=9	>25 FT=12
<i>Pseudophoenix sargentii</i>	Buccaneer Palm	8	6	5	6 at any OA		
<i>Ptychosperma elegans</i>	Solitaire Palm	5	4	3	6 at any OA		
<i>Ptychosperma macarthurii</i>	Macarthur Palm	5	4	3	4 at any OA		
<i>Rhapis excelsa</i>	Lady Palm	7	6	4	4 at any OA		
<i>Rhapis multifida</i>	Finger Palm	5	4	3	4 at any OA		
<i>Roystonea regia</i>	Royal Palm	6	5	4	≤20 FT=6	>20 FT ≤	>30 FT=12
<i>Sabal</i> sp.	Cabbage Palm (Regenerated)	4	3	2	New white or creamed colored root growth is visible around a minimum of 75% of the perimeter of the root ball and the new roots are held within the containment barrier.		
<i>Sabal</i> sp.	Cabbage Palm (Cropped)	0	0	0	3 at any OA		
<i>Syagrus romanzoffiana</i>	Queen Palm	8	6	5	≤20 FT=6		>20 FT=9
<i>Thrinax radiata</i>	Florida Thatch Palm	8	6	5	6 at any OA		
<i>Trachycarpus fortunei</i>	Windmill Palm	12	10	7	6 at any OA		
<i>Veitchia arecina</i> (formerly <i>V. montgomeryana</i>)	Montgomery Palm	5	4	3	≤20 FT=9		>20 FT=12
<i>Washingtonia robusta</i>	Mexican Fan Palm	8	6	5	≤20 FT=6		>20 FT=9
<i>Wodyetia bifurcata</i>	Foxtail Palm	7	6	4	≤20 FT=6		>20 FT=9

(1) Refer to Leaf Count Definition in the Grading Glossary

(2) Refer to Root Ball Measurement Definition in the Grading Glossary

INTRODUCTION TO PALM SPECIFYING

Florida Grades and Standards for Palms is constructed to measure only the health and potential for successful reestablishment of palms at the time of delivery. Design professionals seeking specific palm forms, dimensions or other physical characteristics must specify those attributes in the contract. Further, other details including those relating to installation, establishment and warranty must be specified contractually. Specifications must meet or exceed minimal grading standards.

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 grading and specifying palms.

GLOSSARY OF PALM SPECIFICATION TERMINOLOGY

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.

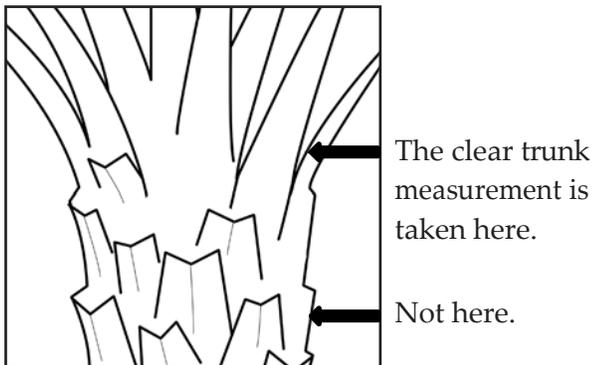
Caliper: The diameter of a palm's trunk after final trunk treatment. The height that this diameter is measured must be specified.

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)." Care must be taken to avoid leaf node damage as this can cause permanent damage to the trunk.

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 Florida Fancy, Florida #1, and Florida #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 root ball to the highest point on the trunk free of persistent leaf bases. On palms with a crownshaft, the measurement is from the top of root ball to the base of the crownshaft. Palms with

persistent leaf bases may not have clear wood.

Cropped Palms: Palms with all leaves removed before transplanting. Typically performed on collected 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.

Juvenile Palms: Any immature palm which has not reached the developmental stage of growth necessary for evaluation in accordance with Grades and Standards.

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

Examples of Leaf Base Trimming



Classic Cut



Clean Cut



Diamond Cut



Shelf Cut

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.

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 root ball to the natural position of the last fully emerged (all leaflets are fully expanded) leaf.

Regenerated Palms: Palms that have been collected/dug and maintained until new white or creamed colored root growth is visible around a minimum of 75% of the perimeter of the root ball. The new roots are held within a containment barrier. Roots which penetrate or escape the barrier cannot be included in this percentage. (This requirement is a standard for grading regenerated cabbage palms as detailed in Table 1.)



Regenerated palms



Regenerated root ball

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

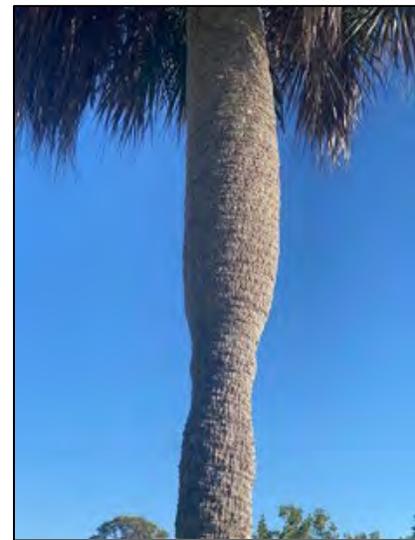
Sloughing: The natural degradation and dropping of leaf bases. This is not detrimental to the palm's health.

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

Terminus Height: Measurement from the top of root ball to the point of emergence of the spear leaf. This is a practical measurement method for cropped and some other palms.

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.

Trunk Constriction: The reduction in diameter of any portion of the trunk relative to the trunk above and /or below. This includes tapering and hourglass appearances. Constriction is considered abrupt when the trunk diameter changes more than 10% within 1 foot above and/or below.

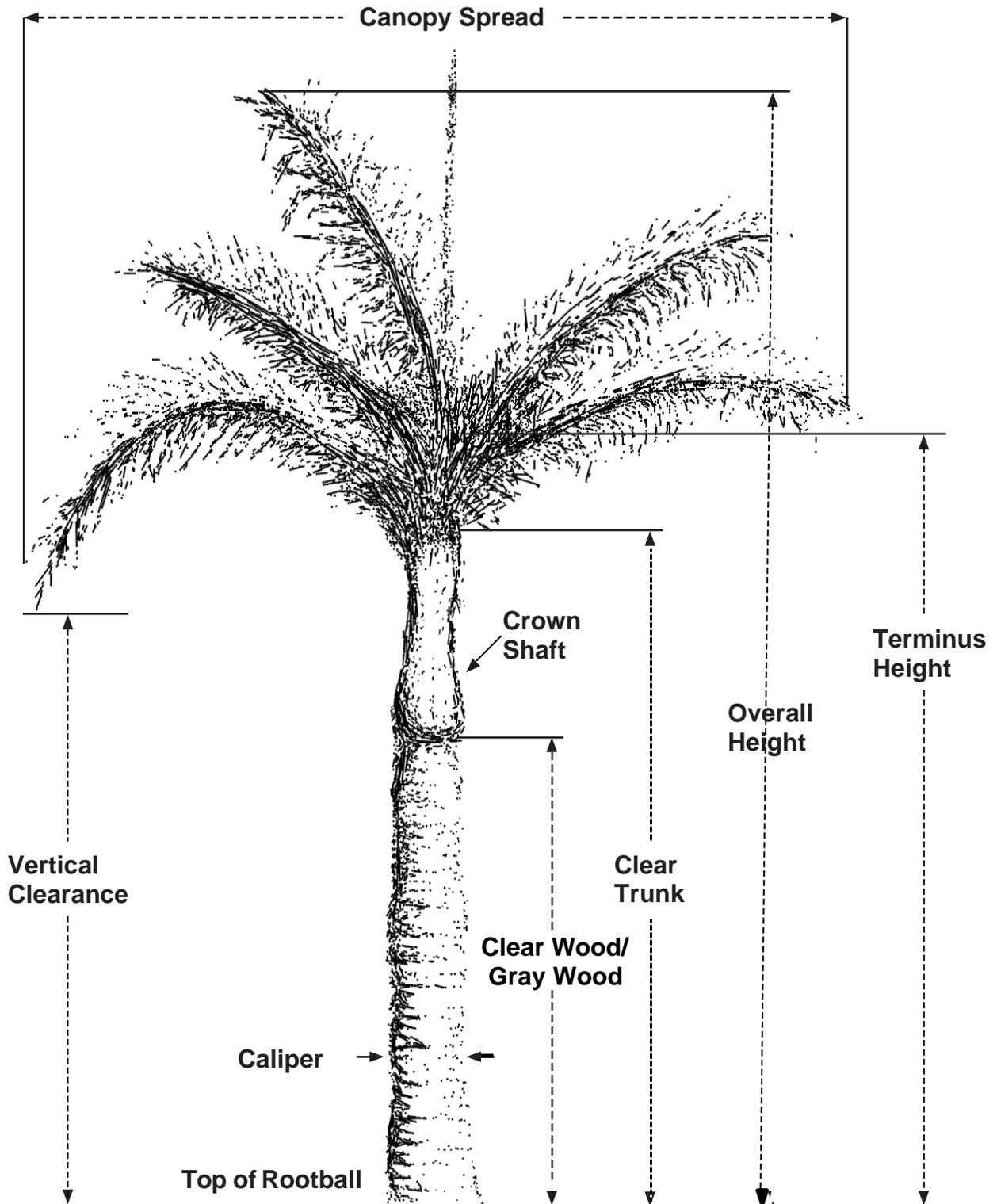


Trunk Constriction

Vertical Clearance: A measurement from the top of root ball to the lowest leaf. Pruning may be required to achieve clearance for pedestrians, vehicles, signs, etc. If minimum leaf counts are maintained, grading is not affected (see diagram on page 56).

ILLUSTRATION OF PALM SPECIFICATION TERMINOLOGY

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.



CHECKLIST FOR POTENTIAL SPECIFICATIONS

Trunk Measurements

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

Trunk Characteristics

- Curved, straight or multi trunk
- Type of Leaf Base Trimming/Treatment
- Pseudobark Appearance
- No Trunk Constriction

Leaves

- Cropped Palm
- Canopy Spread
- Leaf Tipping (To Be Done After Grading)
- Leaf Count for Species not listed in Table 1

Other

- Regeneration
- Overall Height
- Root ball Measurements of Species Not Listed in Table 1
- Certifications
- Vertical Clearance
- Timeframe or Other Performance requirements
- Pre-shipment Protocols

Palm Specification Examples

<i>Roystonea regia</i>	Florida royal palm	FL No. 1 - 18 FT GW, 10 LEAF COUNT, 16 IN CAL MEASURED AT 3 FT HT, 5 FT X 5 FT ROOT BALL, 8 WEEKS ROOT PRUNED
<i>Sabal palmetto</i>	sabal Palm	FL No. 1 - FG 12-18 FT HT, 'BANANA' OR 'S' CURVE, LEAVE BOOTS ON TOP HALF OF TRUNK (SEE DETAIL)
<i>Thrinax Radiata</i>	Florida thatch palm	FL No. 1 - 5 FT HT, 8 GOOD OR EXCELLENT LEAVES
<i>Veitchia montgomeryana</i>	montgomery palm	FL FANCY - 24 FT HT, TRIPLE TRUNK, MATCHED, MINIMUM 8 EXCELLENT LEAVES
<i>Chamaerops humilis</i>	European fan palm	FL No. 1 - 10 FT OA, 100 GALLON, MINIMUM 4 STEMS, MINIMUM 25 FT TOTAL STEM FOOTAGE
<i>Ptychosperma elegans</i>	solitaire palm	FL No. 1 - 28 FT HT, DOUBLE TRUNK, NO VERTICAL FISSURES
<i>Phoenix Sylvestris</i>	wild date palm	FL FANCY - 10 FT CT, 16 IN CAL MEASURED AT 3FT HT AFTER TRIM, CLEANED FREE OF MOLD AND FUNGUS, DIAMOND BOOT CUT AT PETIOLE FLARE, NO SLOUGHING OR DEGRADATION OF LEAF BASES OR PSEUDOBARK, STRAIGHT TRUNK

ADDITIONAL INFORMATION

For additional information about palm varieties, production, morphology, anatomy, nutrition, fertilization, pests and diseases, see https://edis.ifas.ufl.edu/topic_palms.

SHRUBS

SHRUBS

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INTRODUCTION TO GRADING SHRUBS

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. Because of this versatility, grading is given a broad scope.

The shrubs' quality is based on the health and vigor of the plant, as well as its shape for its intended Type. For this document there are seven grading Types:

1. Broad- Spreading
2. Semi-Broad Spreading
3. Spreading
4. Globose
5. Upright Spreading
6. Upright
7. Columnar

MINIMUM AVERAGE SPREAD FOR CONTAINER AND B&B SHRUBS

	Florida Fancy	Florida #1	Florida #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	2/3 of total height
Type G Globose	Equal total height	2/3 of total height	½ of total height
Type US Upright Spreading	¾ of total height	½ of total height	1/3 of total height
Type U Upright	½ of total height	1/3 of total height	1/4 of total height
Type C Columnar	1/3 of total height	1/4 of total height	1/5 of total height

MINIMUM ROOT BALL SIZES

Minimum Root Ball Diameter					
TYPE BS, SBS & S		TYPES G & US		TYPES U & C	
SPREAD	MINIMUM ROOT BALL DIAMETER	SPREAD	MINIMUM ROOT BALL DIAMETER	SPREAD	MINIMUM ROOT 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"		

Note: Larger sizes increase proportionately.

Minimum Root Ball Depth	
Root balls with diameter less than 20"	= Depth not less than 75% of ball diameter.
Root balls with diameters of 20" to 30"	= Depth not less than 66 % of ball diameter.
Root balls with diameters of 30" to 48"	= Depth not less than 60% of ball diameter.

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 1/4 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 1/4 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 1/3 greater than minimum ball size if not root pruned.

Florida #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
- d. beneath unless clean and healed 75% or better (except pruning scars).
- e. Pruning scars clean cut leaving little or no protrusion from trunk or branch.
- f. Graft union healed 75% or better.
- g. 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 1/4 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 #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
- c. wood beneath unless clean and healed 75% or better (except pruning scars).
- d. Pruning scars clean cut.
- e. 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
- 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 1/4 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 1/3 greater than minimum ball size if not root-pruned

GENERAL DOWNGRADING FACTORS

The following is a list of defects which offers a quick reference of downgrading factors. Some of these defects may make a plant ineligible for Florida Fancy, Florida #1 or Florida #2 grades. If a plant has one of these defects, it does not necessarily mean that the plant would be prohibited from being placed in a higher grade later as many of the defects can be corrected with proper maintenance.

Note: Due to their size, shape, and age, the plants which may not meet the Type designation at the time of grading may become eligible after the next growing season.

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

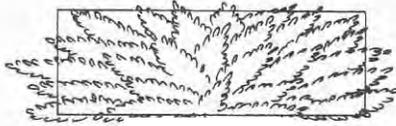
T	F	Downgrading Factors
		1. Lack of Health and Vigor, or Excessive Succulence.
		2. Canes or Trunk(s) and Branches:
		a) Weak or poorly formed.
		b) Excessive scarring, scars not healing properly, or poor pruning cuts showing excessive protrusion.
		c) Poor graft unions not healing properly or rough 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.

TYPES OF SHRUBS

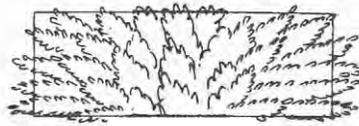
TYPE BS — BROAD SPREADING

MINIMUM AVERAGE SPREAD

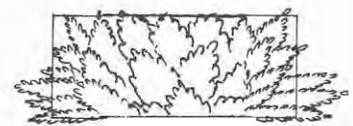
TOTAL HEIGHT	FLORIDA FANCY 3 x total height	FLORIDA #1 2¾ x total height	FLORIDA #2 2½ x total height	APPROXIMATE CONTAINER SIZE
3"	9"	8"	7"	1 GAL.
5"	15"	14"	12"	2 GAL.
7"	21"	19"	18"	3 GAL.
9"	27"	25"	22"	4 GAL.
12"	36"	33"	30"	7 GAL.
15"	45"	41"	37"	10 GAL.
18" +	3 x total height	2 ¾ x total height	2 ½ x total height	15 GAL. +



Florida Fancy



Florida #1



Florida #2

TYPE BS — BROAD SPREADING



Florida Fancy: emerald blanket natal-plum



Florida Fancy: dwarf or compact shore juniper



Florida #1: emerald blanket natal-plum



Florida #1: dwarf or compact shore juniper



Florida #2: emerald blanket natal-plum



Florida #2: dwarf or compact shore juniper

TYPE SBS — SEMI-BROAD SPREADING
MINIMUM AVERAGE SPREAD

TOTAL HEIGHT	FLORIDAFANCY 2¼ x total height	FLORIDA #1 2 x total height	FLORIDA #2 1¾ total height	APPROXIMATE 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. +



Florida Fancy



Florida #1



Florida #2

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 #1 Examples



Mexican-heather



nana holly, dwarf yaupon



Nick's compact juniper



dwarf trailing lantana

TYPE SBS — SEMI-BROAD SPREADING Florida #2 Examples



Mexican-heather



nana holly, dwarf yaupon



Nick's compact juniper

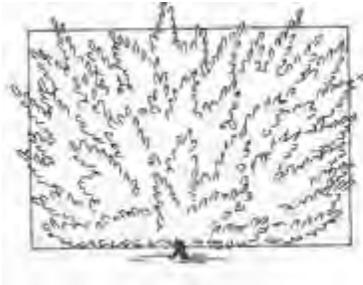


dwarf trailing lantana

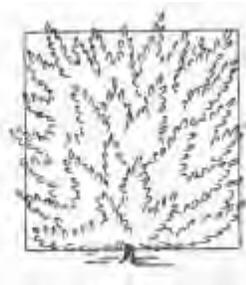
TYPE S — SPREADING

MINIMUM AVERAGE SPREAD

TOTAL HEIGHT	FLORIDA FANCY 1½ x total height	FLORIDA #1 Equal total height	FLORIDA #2 2/3 of total height	APPROXIMATE 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.
36" +	1½ x total height	Equal total height	2/3 of total height	15 GAL.



Florida Fancy



Florida #1



Florida #2

TYPE S — SPREADING Florida Fancy Examples



bush allamanda



crown-of-thorns



plumbago



Indian-hawthorn

TYPE S — SPREADING

Florida #1 Examples



bush allamanda



crown-of-thorns



plumbago



Indian-hawthorn

TYPE S — SPREADING Florida #2 Examples



bush allamanda



crown-of-thorns



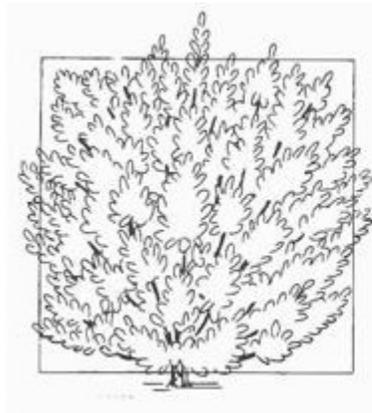
plumbago



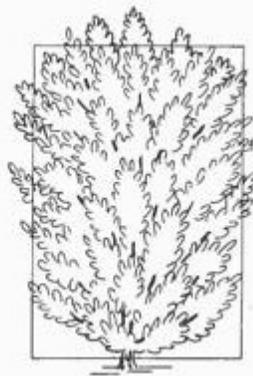
Indian-hawthorn

TYPE G — GLOBOSE
MINIMUM AVERAGE SPREAD

TOTAL HEIGHT	FLORIDA FANCY Equal total height	FLORIDA #1 2/3 total height	FLORIDA #2 1/2 total height	APPROXIMATE 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	2/3 of total height	1/2 of total height	5-15 GAL. +



Florida Fancy



Florida #1



Florida #2

TYPE G — GLOBOSE Florida Fancy Examples



pineapple-guava



thyallis or shower-of-gold



dwarf Chinese holly



variegated pittosporum

TYPE G — GLOBOSE

Florida #1 Examples



pineapple-guava



thryallis or shower-of-gold



dwarf Chinese holly



variegated pittosporum

TYPE G — GLOBOSE

Florida #2 Examples



pineapple-guava



thryallis or shower-of-gold



dwarf Chinese holly



variegated pittosporum

TYPE G — GLOBOSE AZALEAS

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

Example varieties are listed below to illustrate growth habits:

1. Landscape:

Southern Indica Hybrids

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

The following Southern Indica hybrids have a more open growth habit, and the foliage compactness is not expected to be as dense as hybrids listed above:

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

Kurume Hybrids

Christmas Cheer
Coral Bells
Hexe
Hino-Crimson
Snow

Pericat Hybrids

Gardenia Supreme
Holiday
Madam Pericat
Sweetheart
Sweetheart Supreme

2. Florists' or Greenhouse Forcing:

Kurume Hybrids

Christmas Cheer
Coral Bells
Hexe
Hino-Crimson

Pericat Hybrids

Holiday
Mrs. Alice W. Mueller
Pericat Pink
Sweetheart Supreme

Rutherford Hybrids

Alaska
Constance

Belgian Indica 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.
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.



Formosa azalea



red ruffles azalea



coral bells azalea

Florida #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.



Formosa azalea



red ruffles azalea



coral bells azalea

Florida #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.



Formoso azalea



red ruffles azalea



coral bells azalea

TYPE G — GLOBOSE 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 meliononii 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
#3, 3 Gallon	18 - 24, 24 - 30, 30 - 36 inches
#7 to #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	PLANTER PER CONTAINER	MINIMUM LEAVES
gallon	1	6
gallon	2	12
3 - 5 gallon	1	10
3 - 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.



TYPE G — SELF HEADING

Florida Fancy

Scientific name: *Philodendron bipinnatifidum* Endl.

Common name: philodendron, selloum

Synonym: *P. selloum* K. Koch

Florida #1

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	PLANTER PER CONTAINER	MINIMUM LEAVES
gallon	1	5
gallon	2	10
3 - 5 gallon	1	7
3 - 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 discernable.

2. Root System

- a. Container grown
1. No more than one root growing out of container and no longer than containers height.
 2. Healthy and vigorous
 3. Sturdily established in container

Florida #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	PLANTER PER CONTAINER	MINIMUM LEAVES
gallon	1	3
gallon	2	6
3 - 5 gallon	1	5
3 - 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 containers height.
 2. Healthy and vigorous.
 3. Sturdily established in container.



TYPE G — SELF HEADING

Florida #1

Scientific name: *Phlodesdron bipinnatifidum* Endl.

Common name: philodendron, selloum

Synonym: *P. selloum* K. Kock



TYPE G — SELF HEADING

Florida #2

Scientific name: *Phlodesdron bipinnatifidum* Endl.

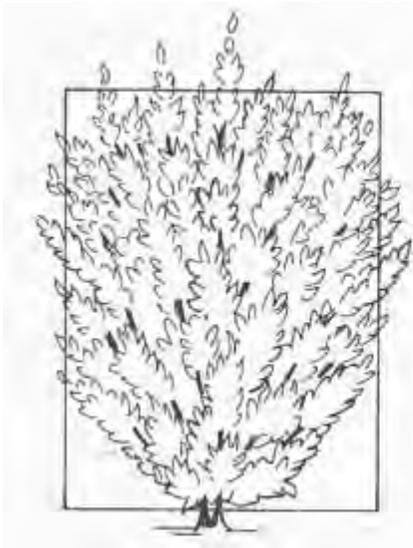
Common name: philodendron, selloum

Synonym: *P. selloum* K. Kock

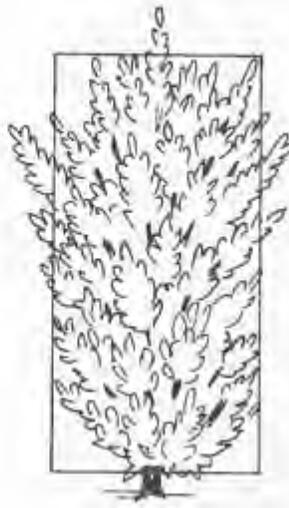
TYPE US — UPRIGHT SPREADING

MINIMUM AVERAGE SPREAD

TOTAL HEIGHT	FLORIDA FANCY Equal total height	FLORIDA #1 2/3 total height	FLORIDA #2 1/2 total height	APPROXIMATE 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" +	3/4 of total height	1/2 of total height	1/2 of total height	7 GAL. +



Florida Fancy



Florida #1



Florida #2

TYPE US — UPRIGHT SPREADING

Florida Fancy Examples



boxwood



powderpuff



bougainvillea



cocoplum



sea-grape



oleander

TYPE US — UPRIGHT SPREADING
Florida #1 Examples



boxwood



powderpuff



bougainvillea



cocoplum



sea-grape



oleander

TYPE US — UPRIGHT SPREADING

Florida #2 Examples



boxwood



powderpuff



bougainvillea



cocoplum



sea-grape



oleander

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

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

3. Root System

- b. Container-grown.
 3. Sturdily established in container.
 4. Not excessively rootbound except plants deliberately grown rootbound to produce a dwarf plant.
 5. No large roots growing out of container.
- c. 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 have been previously root pruning and/or contain sufficient roots for continued growth without resulting shock.
 3. Minimum ball size: see chart, page 7.
- d. 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 $\frac{1}{4}$ 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 $\frac{1}{3}$ greater than minimum ball size if not root pruned. See chart page 7.



TYPE US — CAMELLIAS

Florida #Fancy

Scientific name: *Camellia japonica* L.

Common name: common camellia



TYPE US — CAMELLIAS

Florida #1

Scientific name: *Camellia japonica* L.

Common name: common camellia



TYPE US — CAMELLIAS

Florida #2

Scientific name: *Camellia japonica* L.

Common name: common camellia

TYPE US – CAMELLIAS

Downgrading Factors: Percentage of Graft Union Healed



100% healed



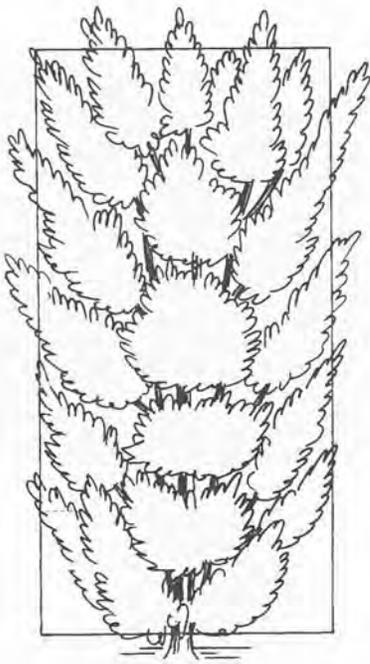
75% healed



50% healed

TYPE U — UPRIGHT
MINIMUM AVERAGE SPREAD

TOTAL HEIGHT	FLORIDA FANCY 1/2 total height	FLORIDA #1 1/3 total height	FLORIDA #2 1/4 total height	APPROXIMATE 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' +	1/2 of total height	1/3 of total height	1/4 of total height	5 GAL. +



Florida Fancy



Florida No. 1



Florida No. 2

TYPE U — UPRIGHT Florida Fancy Examples



copper-leaf



Ocala anise, yellow anise



Hollywood juniper, twisted juniper

TYPE U — UPRIGHT
Florida #1 Examples



copper-leaf



Ocala anise, yellow anise



Hollywood juniper, twisted juniper

TYPE U — UPRIGHT Florida #2 Examples



copper-leaf



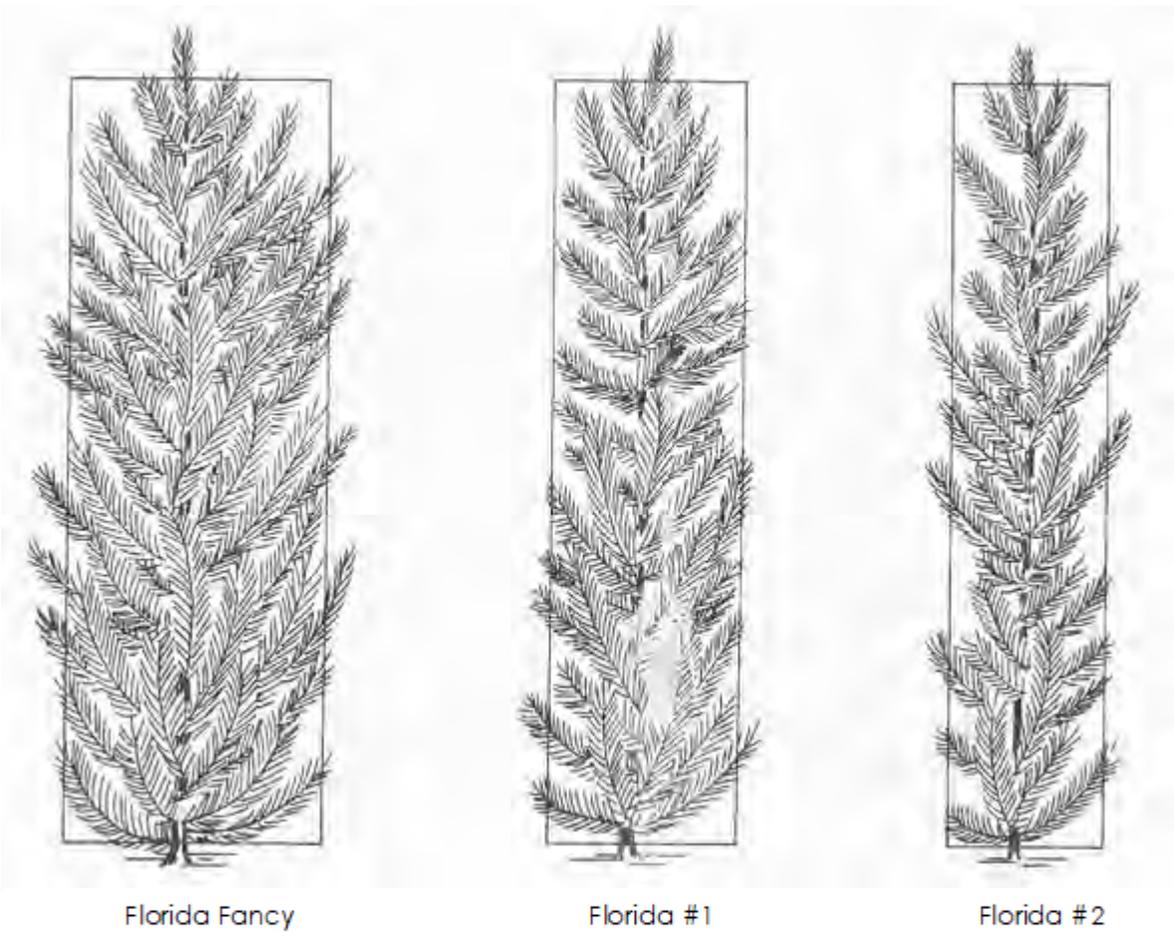
Ocala anise, yellow anise



Hollywood juniper, twisted juniper

TYPE C — COLUMNAR MINIMUM AVERAGE SPREAD

TOTAL HEIGHT	FLORIDA FANCY 1/3 total height	FLORIDA #1 1/4 total height	FLORIDA #2 1/5 total height	APPROXIMATE 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' +	1/3 of total height	1/4 of total height	1/5 of total height	10 GAL. +



Florida Fancy

Florida #1

Florida #2

TYPE C — COLUMNAR



Scientific name: *Podocarpus macrophyllum*
Common name: Podocarpus
Florida Fancy



Scientific name: *Podocarpus macrophyllum*
Common name: Podocarpus
Florida #1



Scientific name: *Podocarpus macrophyllum*
Common name: Podocarpus
Florida #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 #1 Special
 Florida #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

All species (i.e. Agave, Aloe, Crinum, Yucca) that have basal rosettes and are stemless; with stiff, heavy or thick, and persistent leaves are included in the following grade specifications:

Florida Fancy	
1. Foliage	<ul style="list-style-type: none"> a. Twelve or more perfect leaves. b. Leaves beginning at ground level. c. Color, shape, and substance indicative of the species.
2. Root System	<ul style="list-style-type: none"> a. Sturdily established in the container or with sufficient roots for normal growth and vitality, if moved bare-root.
Florida #1	
1. Foliage	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> a. Sturdily established in the container or with sufficient roots for normal growth and vitality, if moved bare-root.
Florida #2	
1. Foliage	<ul style="list-style-type: none"> a. Six or more good leaves. b. Color, shape, and substance indicative of the species.
2. Root System	<ul style="list-style-type: none"> a. Sturdily established in the container or with sufficient roots for normal growth and vitality, if moved bare-root.



TYPE SS — SPECIFIC SPECIFICATIONS
Florida Fancy
Scientific name: *Crinum asiaticum*
Common name: grand crinum
poison bulb



TYPE SS — SPECIFIC SPECIFICATIONS
Florida #1
Scientific name: *Crinum asiaticum*
Common name: grand crinum
poison bulb



TYPE SS — SPECIFIC SPECIFICATIONS
Florida #2
Scientific name: *Crinum asiaticum*
Common name: grand crinum
poison bulb

TYPE SS — SPECIFIC SPECIFICATIONS STEMMED ROSETTES

All Yucca species that have stems or are arborescent; with desired type stated in specifications.

Types of Yucca are:

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

All types must have a top measured according to grade specifications. Unrooted cuttings must meet all specifications for grade, except root system specifications which do not apply. The 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	
1. Trunk	<ol style="list-style-type: none"> a. Sufficiently straight to remain in an upright position. b. Buyer's preference as to type. c. Solid and undamaged
2. Foliage	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> a. Sturdily established in the container or ball.
Florida #1	
1. Trunk	<ol style="list-style-type: none"> 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 1/4 inch deep.
2. Foliage	<ol style="list-style-type: none"> a. No more than 25% of the leaves may show blemishes, discoloration, or aging. b. Leafed portion must have a height $\frac{3}{4}$ of the width.
3. Root System	<ol style="list-style-type: none"> a. Sturdily established in the container or ball.
Florida #2	
1. Trunk	<ol style="list-style-type: none"> a. Buyer's preference as to type. b. Any pest or mechanical damage must be no more than one-inch deep.
2. Foliage	<ol style="list-style-type: none"> a. No more than 50% of the leaves may show blemishes, discoloration, or aging. b. Leafed portion must have a height $\frac{1}{2}$ of the width.
3. Root System	<ol style="list-style-type: none"> a. Sturdily established in the container or ball.



TYPE SS — SPECIFIC SPECIFICATIONS
Florida Fancy
Scientific name: Yucca aloifolia L.
Common name: Spanish bayonet



TYPE SS — SPECIFIC SPECIFICATIONS
Florida #1
Scientific name: Yucca aloifolia L.
Common name: Spanish bayonet



TYPE SS — SPECIFIC SPECIFICATIONS
Florida #2
Scientific name: Yucca aloifolia L.
Common name: Spanish bayonet

TYPE SS — SPECIFIC SPECIFICATIONS FERNS

Example species include 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 #1

1. Foliage
 - a. Minimum of 10 perfect fronds.
 - b. All fronds extending around root stock from $\frac{3}{4}$ to a full circular pattern.
 - c. Color, shape, and substance indicative of the species.
2. Root System
 - a. Roots firmly established in container.

Florida #2

1. Foliage
 - a. Minimum of six or more perfect fronds.
 - b. Fronds extending irregularly from root stock from only $\frac{1}{2}$ to $\frac{3}{4}$ of a circle.
2. Root System
 - a. Roots firmly established in container.



TYPE SS — SPECIFIC SPECIFICATIONS
Florida Fancy
Scientific name: *Cyrtomium falcatum*(L.f.) Presl
Common name: Japanese holly fern



TYPE SS — SPECIFIC SPECIFICATIONS
Florida #1
Scientific name: *Cyrtomium falcatum*(L.f.) Presl
Common name: Japanese holly fern



TYPE SS — SPECIFIC SPECIFICATIONS
Florida #2
Scientific name: *Cyrtomium falcatum*(L.f.) Presl
Common name: Japanese holly fern

ROSES

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, GRANDIFLORA, RUGOSA HYBRIDS, HYBRID PERPETUAL, MOSS, AND CLIMBING ROSES

Florida 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.

Florida #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.

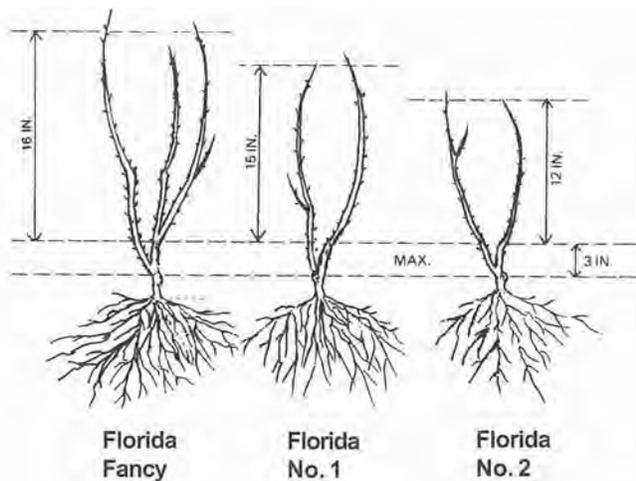
Florida #2

At least two canes, one of which shall be a strong second shall be 1/4 inch (0.6 cm) in caliper, branched not higher than three inches (8 cm) from the bud union.

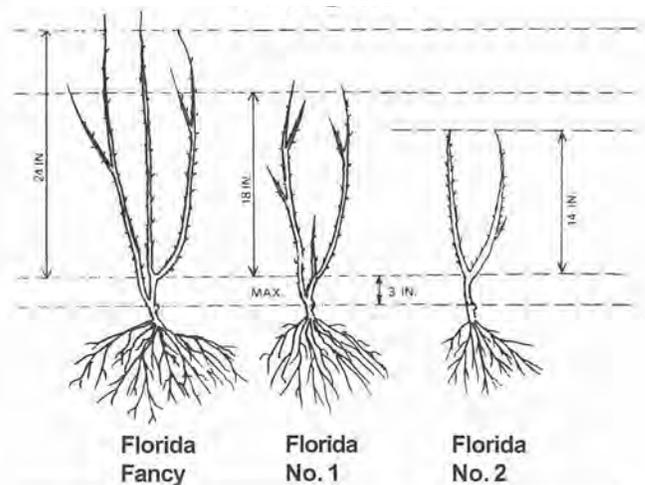
Note:

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 graded designations)

POLYANHA, SHRUB, LANDSCAPE AND LOW-GROWING FLORIBUNDA ROSES

Florida Fancy

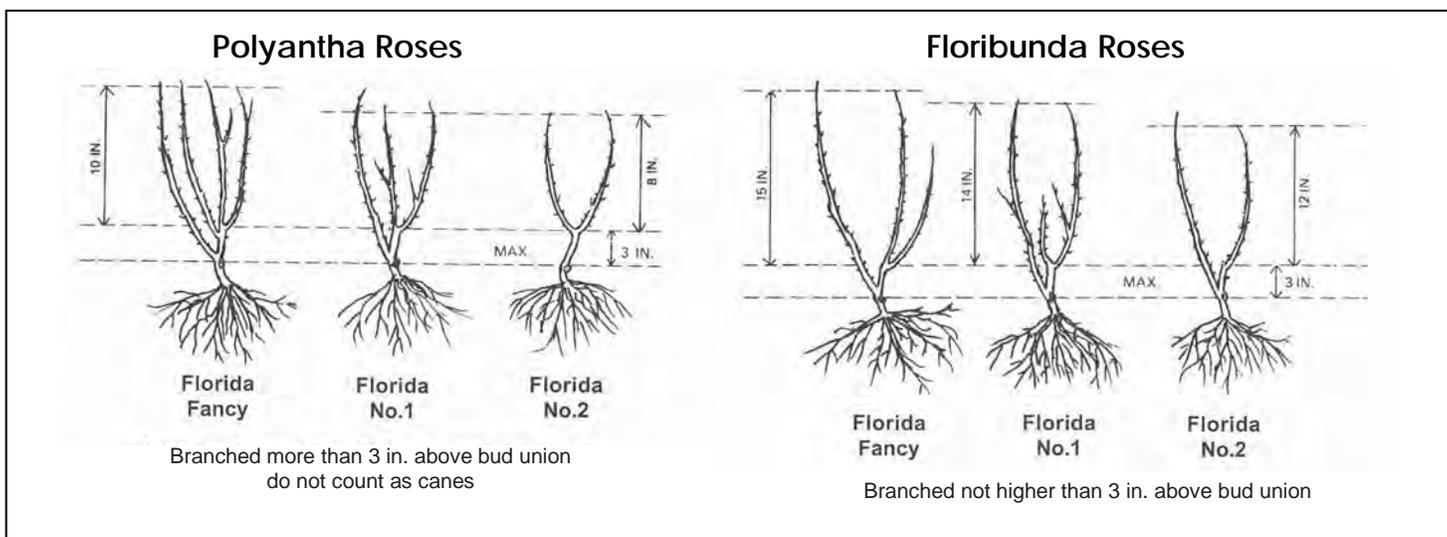
At least three (strong) canes, 1/4 inch (0.6 cm) in caliper and up, branched not higher than three inches (8 cm) from the bud union.

Florida #1

At least two (strong) canes, 1/4 inch (0.6 cm) in caliper and up, branched not higher than three inches (8 cm) from the bud union.

Florida #2

At least two canes, one of which shall be a (strong) cane, 1/4 inch (0.6 cm) in caliper and up and branched not higher than three inches from the 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 (10cm) 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 should be a minimum three-gallon size.

TYPE GC — GROUNDCOVERS

General

- 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.
- The following grades are general standards for 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 #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 1/4 of container soil exposed to view.

2. Root Systems

- 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 #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 affecting 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 Systems

- 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 #1 Examples



asparagus-fern, sprengeri



cast iron plant



blue rug juniper

TYPE GC — GROUNDCOVERS

Florida #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:

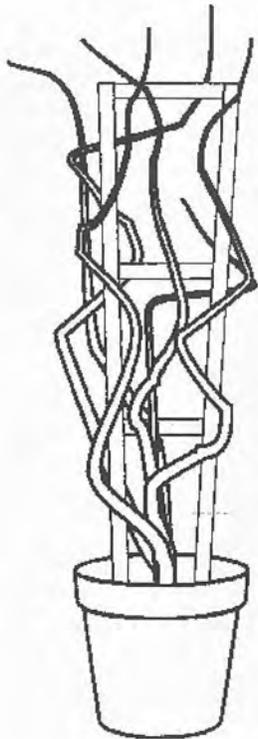
- a. Well formed and properly supported (staked or trellised).
- b. Branching plentiful and uniformly distributed to form a well-balanced plant.
- c. No mechanical, pest or cold damage.

2. Foliage:

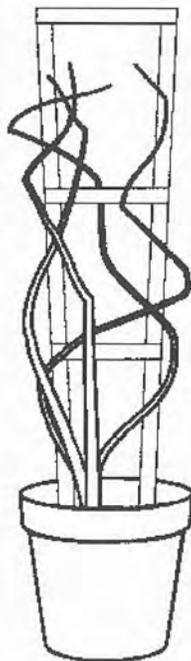
- a. Densely supplied with healthy, vigorous leaves of normal size, shape, color and texture (except deciduous vines when dormant).
- b. No chlorosis.
- c. No mechanical or pest damage.

3. Root System:

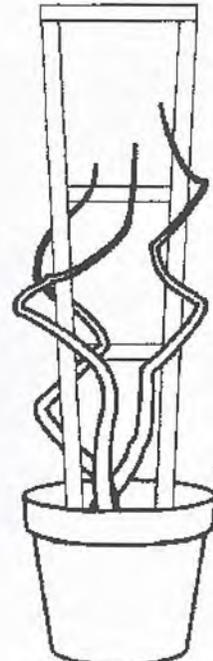
- a. Sturdily established in container.
- b. Not excessively root bound.
- c. No large roots growing out of container.
- d. No noxious weeds in container.



Florida Fancy
Minimum of 5 runners
no less than 4' long



Florida #1
Minimum of 4 runners
no less than 3' long



Florida #2
Minimum of 3 runners
no less than 2 1/2 ' long

TYPE V — ORNAMENTAL VINES

Florida Fancy Examples



yellow allamanda



Mexican flame vine



purple passion vine

TYPE V — ORNAMENTAL VINES

Florida #1 Examples



yellow allamanda



Mexican flame vine



purple passion vine

TYPE V — ORNAMENTAL VINES

Florida #2 Examples



yellow allamanda



Mexican flame vine



purple passion vine

**INDEX OF SHRUBS, GROWDCOVERS, AND VINES
LISTED ALPHEBETICALLY BY COMMON NAMES
WITH THE TYPE WHICH THEY ARE TO BE GRADED BY**

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

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

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

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

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

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

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

**INDEX OF SHRUBS, GROWDCOVERS, AND VINES
LISTED ALPHEBETICALLY BY SCIENTIFIC NAMES
WITH THE TYPE WHICH THEY ARE TO BE GRADED BY**

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

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

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

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

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

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

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

GLOSSARY OF TERMS

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 1/4 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 topmost portion of the plant.

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

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WETLAND PLANTS

WETLAND PLANTS

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INTRODUCTION TO GRADING WETLAND PLANTS

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

Standards for wetland trees are contained within the TREES section, except for mangroves, which are included here.

Grades established for trees (Florida Fancy, Florida #1, Florida #2) do not apply when

wetland trees are used for mitigation purposes.

Downgrading factors listed in this section apply to wetland species when these plants and trees are used for mitigation or aquascaping.

It is important to note that the collection, possession, cultivation, and transportation of wetland species may require a permit from the Florida Department of Agriculture and Consumer Services.

STANDARDS FOR WETLAND PLANTS

1. Wetland species to be graded shall be free of other plants considered to be invasive, 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 wetland specimens (including plugs or bare root, 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 wetland 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. Wetland specimen in a 4-inch diameter container or less must be grown in that container for a minimum of 30 days. Wetland specimen in a container greater than 4 inches diameter must be grown in that container for a minimum of 45 days.
5. The specimen is unacceptable if one of the following four conditions are true:

T	Conditions
	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).

GRADING STANDARDS FOR RED¹ AND BLACK² MANGROVES

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

¹Rhizophora mangle L. (See Figure 1)

²Avicennia germinans (L.) L. (See Figure 1)

*Wetland plants which do not meet minimum criteria for 1 gallon standard are considered seedlings.

Figure 1.



red mangrove
Rhizophora mangle L.



black mangrove
Avicennia germinans (L.) L.

GRADING STANDARDS FOR WETLAND TREES (EXCLUDING RED AND BLACK MANGROVES)

	Seedling	1 gallon	3 gallon	7 gallon
Height	>18"	18-36"	40-72"	60-84"
Caliper (min)	>14"	¼"	3/8"	¾"
Crown (min)	>4"	4"	12"	24"
Roots	Fully rooted in pot but not rootbound.			
Time in Container (min)	60 days	90 days	90 days	90 days

GRADING STANDARDS FOR 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

GRADING STANDARDS FOR WETLAND HERBS

	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

GENERAL GRADING ILLUSTRATIONS FOR WETLAND PLANTS

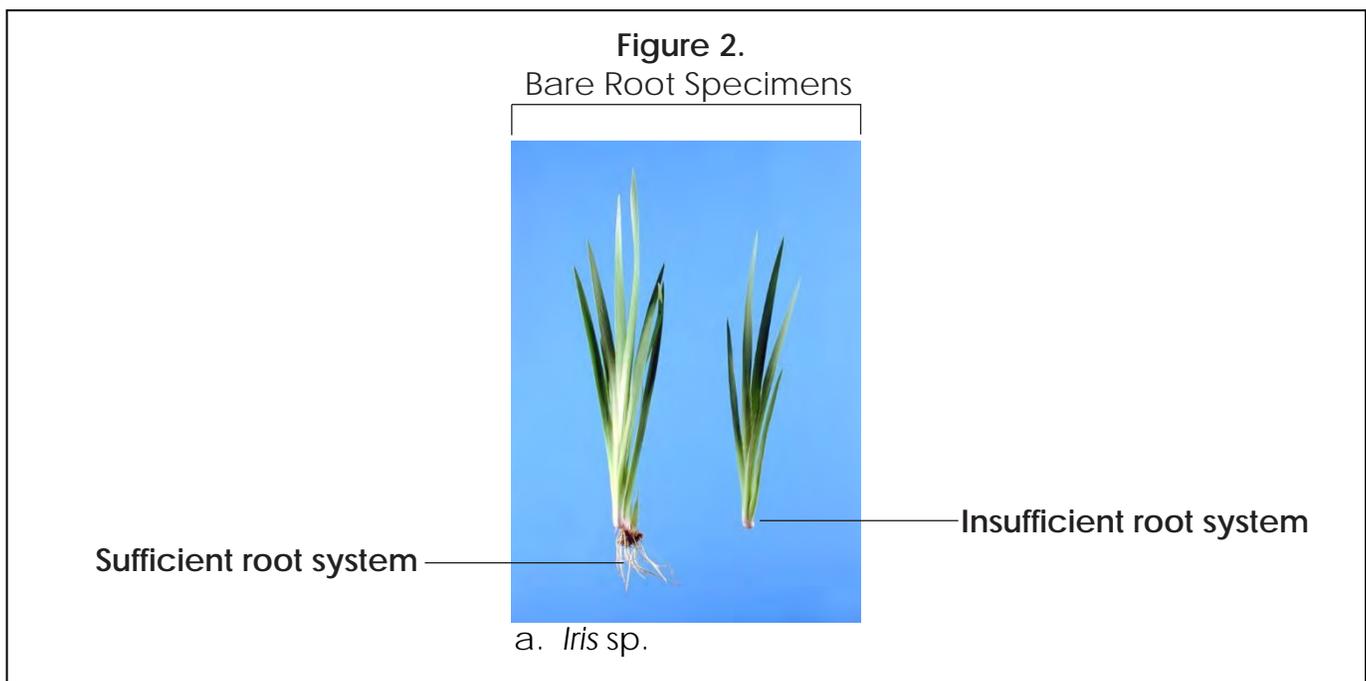
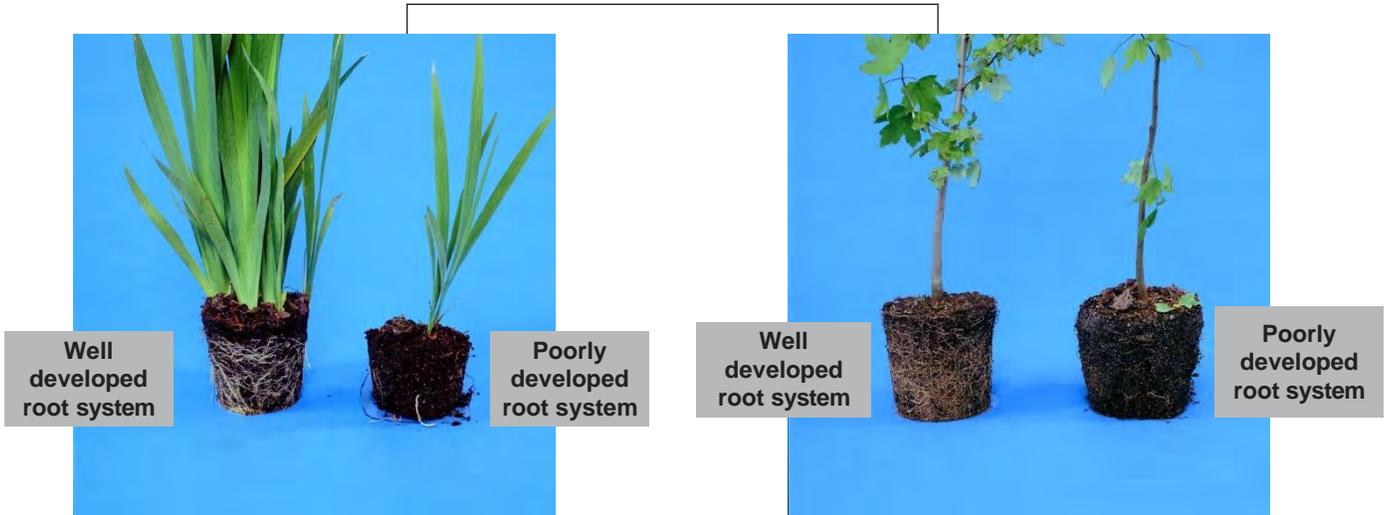
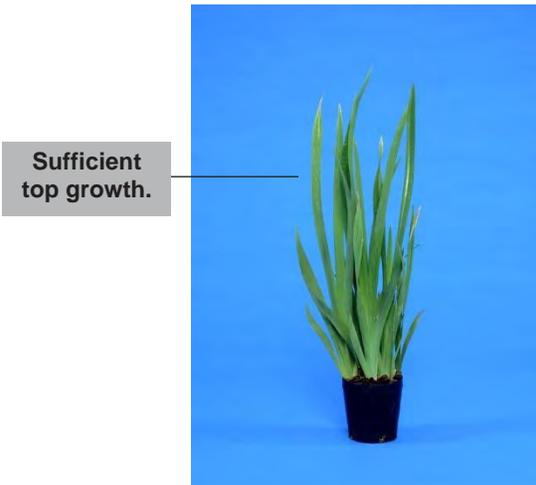


Figure 3.
Containerized Specimens

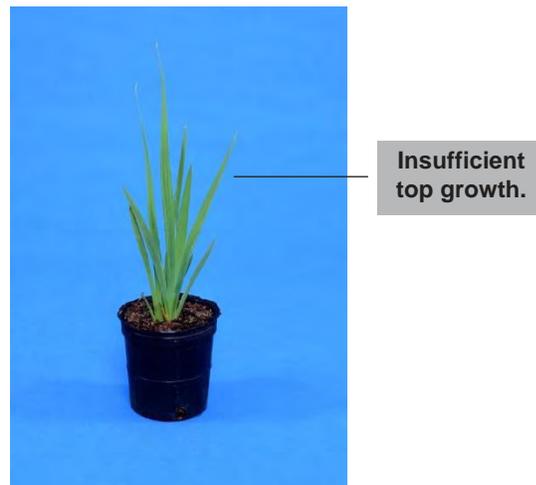


a. *Iris virginica*

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. *Junus effusus*
(collected specimens)
Roots damaged by digging.



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

INDEX OF WETLAND SHRUBS

SCIENTIFIC NAME

Alnus serrulata (Aiton)Willd.
Baccharis angustifolia Michx.
Batis maritima L.
Cephalanthus occidentalis L.
Clethra alnifolia L.
Cliftonia monophylla (Lam.) Britton ex Sarg.
Conocarpus erectus L.
Cornus foemina Mill.
Crataegus aestivalis (Walter)Torr. & A.Gray
Cyrilla racemiflora L.
Forestiera acuminata (Michx.)Poir.
Hypericum fasciculatum Lam.
Ilex coriacea (Pursh)Chapm.
Ilex decidua Walter
Ilex myrtifolia Walter
Illicium floridanum J.Ellis
Itea virginica L.
Iva spp.
Litsea aestivalis (L.)Fernald
Lyonia lucida (Lam.)K.Koch
Myrica cerifera L.
Myrica inodora W.Bartram
Rosa palustris Marsh.
Styrax americanus Lam.
Symplocos tinctoria (L.)L'Hér.
Viburnum rufidulum Raf.

COMMON NAME

American snowbell, storax
 black titi
 buttonbush
 buttonwood
 coastal sweetpepper bush
 eastern swamp privet
 fetterbush
 Florida anise
 hazel alder
 large gallberry; sweet gallberry
 marsh-elder
 May haw
 myrtle holly
 odorless bayberry
 pondspice
 possumhaw
 rusty blackhaw
 saltwater false willow
 saltwort; turtleweed
 sandweed; peelbark St. John's-wort
 swamp dogwood
 swamp rose
 sweetleaf; horse sugar
 titi
 Virginia willow; Virginia sweetspire
 wax myrtle

COMMON NAME

hazel alder
 saltwater false willow
 saltwort; turtleweed
 buttonbush
 coastal sweetpepper bush
 black titi
 buttonwood
 swamp dogwood
 May haw
 titi
 eastern swamp privet
 sandweed; peelbark St. John's-wort
 large gallberry; sweet gallberry
 possumhaw
 myrtle holly
 Florida anise
 Virginia willow; Virginia sweetspire
 marsh-elder
 pondspice
 fetterbush
 wax myrtle
 odorless bayberry
 swamp rose
 American snowbell, storax
 sweetleaf; horse sugar
 rusty blackhaw

SCIENTIFIC NAME

Styrax americanus Lam.
Cliftonia monophylla (Lam.) Britton ex Sarg.
Cephalanthus occidentalis L.
Conocarpus erectus L.
Clethra alnifolia L.
Forestiera acuminata (Michx.) Poir.
Lyonia lucida (Lam.) K.Koch
Illicium floridanum J. Ellis
Alnus serrulata (Aiton)Willd.
Ilex coriacea (Pursh) Chapm.
Iva spp.
Crataegus aestivalis (Walter) Torr. & A. Gray
Ilex myrtifolia Walter
Myrica inodora W. Bartram
Litsea aestivalis (L.) Fernald
Ilex decidua Walter
Viburnum rufidulum Raf.
Baccharis angustifolia Michx.
Batis maritima L.
Hypericum fasciculatum Lam.
Cornus foemina Mill.
Rosa palustris Marsh.
Symplocos tinctoria (L.) L'Hér.
Cyrilla racemiflora L.
Itea virginica L.
Myrica cerifera L.

INDEX OF WETLAND SEDGES

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

INDEX OF WETLAND SEDGES (continued)

COMMON NAME

American bulrush
awl fruit sedge
black bogrush
bristly stalked sedge
Canby's bulrush
Carolina fimbry
Cuban bulrush
cypress knee sedge
ditch fimbry
forked fimbry
fragrant flat sedge
giant whitetop sedge
hairy umbrella sedge
Harper's fimbry
haspan flat sedge
jointed flat sedge
marsh fimbry
millet beak sedge
mingled beak sedge
narrow fruit horned beak sedge
nut-rush
prickly bog sedge
salt marsh bulrush
sawgrass
sharp scale bulrush
short bristle horned beak sedge
soft stem bulrush
southern beaksedge
southern umbrella sedge
spike rush
spreading beak sedge
star rush whitetop
Tracy's beak sedge
umbrella plant
Vahl's fimbry
woolgrass

SCIENTIFIC NAME

Scirpus americanus (Pers.) Volkart ex Schinz & R. Keller
Carex stipata Muhl. ex Willd.
Schoenus nigricans L.
Carex leptalea Wahlenb.
Schoenoplectus etuberculatus (Steud.) Soják
Fimbristylis caroliniana (Lam.) Fern.
Oxycaryum cubense (Poepp. & Kunth) Palla
Carex decomposita Muhl.
Fimbristylis schoenoides (Retz.) Vahl
Fimbristylis dichotoma (L.) Vahl
Cyperus odoratus L.
Rhynchospora latifolia (Baldwin) W.W. Thomas
Fuirena squarrosa Michx.
Fimbristylis perpusilla Harper ex Small & Britton
Cyperus haspan L.
Cyperus articulatus L.
Fimbristylis spadicea (L.) Vahl
Rhynchospora miliacea (Lam.) A. Gray
Rhynchospora mixta Britton ex Small
Rhynchospora inundata (Oakes) Fern.
Scleria spp.
Carex atlantica L.H. Bailey ssp. *capillacea* (L.H. Bailey) Reznicek
Schoenoplectus robustus (Pursh) M.T. Strong
Cladium mariscus (L.) Pohl ssp. *jamaicense* (Crantz) Kük.
Schoenoplectiella erecta (Poir.) Lye
Rhynchospora corniculata (Lam.) A. Gray
Schoenoplectus tabernaemontani (C.C. Gmel.) Palla
Rhynchospora microcarpa Baldwin ex A. Gray
Fuirena scirpoidea Michx.
Eleocharis spp.
Rhynchospora divergens Chapman ex M.A. Curtis
Rhynchospora colorata (L.) H. Pfeiff.
Rhynchospora tracyi Britton
Cyperus involucratus Rottb.
Fimbristylis vahlii (Lam.) Link
Scirpus cyperinus (L.) Kunth

INDEX OF WETLAND GRASSES

SCIENTIFIC NAME

Aristida spp.
Arundinaria gigantea (Walter) Walter ex Muhl.
Axonopus furcatus (Flüggé) Hitchc.
Distichlis spicata (L.) Greene
Leersia spp.
Luziola fluitans (Michx.) Terrell & H. Rob.
Monanthochloe littoralis Engelm.
Muhlenbergia capillaris (Lam.) Trin.
Muhlenbergia schreberi J.F. Gmel.
Panicum hemitomon Schult.
Panicum rigidulum Bosc ex Nees
Panicum virgatum L.
Paspalum distichum L.
Paspalum repens P.J. Bergius
Phanopyrum gymnocarpon (Elliott) Nash
Spartina alterniflora Loisel.
Spartina bakeri Merr.
Spartina patens (Aiton) Muhl.
Spartina spartinae (Trin.) Merr. ex Hitchc.
Sporobolus virginicus (L.) Kunth
Zizania aquatica L.
Zizaniopsis miliacea (Michx.) Döll & Asch.

COMMON NAME

three-awn grasses
giant cane, switch cane
big carpetgrass
saltgrass
cutgrass
southern watergrass
key grass, shoregrass
gulf muhly, hairy awn muhly
nimblewill muhly
maidencane
redtop panicum
switchgrass
knotgrass
water paspalum
savannah panicum
smooth cordgrass
sand cordgrass
saltmeadow cordgrass
gulf cordgrass
coastal dropseed
annual wild rice
southern wild rice

COMMON NAME

annual wildrice
big carpetgrass
coastal dropseed
cutgrass
giant cane
gulf cordgrass
gulf muhly, hairy awn muhly
key grass, shoregrass
knotgrass
maidencane
nimblewill muhly
redtop panicum
saltgrass
saltmeadow cordgrass
sand cordgrass
savannah panicum
smooth cordgrass
southern watergrass
southern wildrice
switchgrass
three-awn grasses
water paspalum

SCIENTIFIC NAME

Zizania aquatica L.
Axonopus furcatus (Flüggé) Hitchc.
Sporobolus virginicus (L.) Kunth
Leersia spp.
Arundinaria gigantea (Walter) Walter ex Muhl.
Spartina spartinae (Trin.) Merr. ex Hitchc.
Muhlenbergia capillaris (Lam.) Trin.
Monanthochloe littoralis Engelm.
Paspalum distichum L.
Panicum hemitomon Schult.
Muhlenbergia schreberi J.F. Gmel.
Panicum rigidulum Bosc ex Nees
Distichlis spicata (L.) Greene
Spartina patens (Aiton) Muhl.
Spartina bakeri Merr.
Phanopyrum gymnocarpon (Elliott) Nash
Spartina alterniflora Loisel.
Luziola fluitans (Michx.) Terrell & H. Rob.
Zizaniopsis miliacea (Michx.) Döll & Asch.
Panicum virgatum L.
Aristida spp.
Paspalum repens P.J. Bergius

INDEX OF WETLAND RUSHES

SCIENTIFIC NAME

Juncus acuminatus Michx.
Juncus bufonius L.
Juncus canadensis J. Gay ex Laharpe
Juncus coriaceus Mack.
Juncus debilis A. Gray
Juncus dichotomus Elliott
Juncus diffusissimus Buckley
Juncus effusus L.
Juncus elliotii Chapm.
Juncus gymnocarpus Coville
Juncus marginatus Rostk.
Juncus megacephalus M.A. Curtis
Juncus pelocarpus E. Mey.
Juncus polycephalus Michx.
Juncus repens Michx.
Juncus roemerianus Scheele
Juncus scirpoides Lam.
Juncus tenuis Willd.

COMMON NAME

tapertip rush
 toad rush
 Canadian rush
 leathery rush
 weak rush
 forked rush
 slimpod rush
 soft rush
 bog rush
 Pennsylvania rush, Coville's rush
 shore rush, grassleaf rush
 bighead rush
 annual rush
 manyhead rush
 lesser creeping rush
 needle rush
 needlepod rush
 path rush

COMMON NAME

annual rush
 bighead rush
 bog rush
 Canadian rush
 forked rush
 leathery rush
 lesser creeping rush
 manyhead rush
 needle rush
 needlepod rush
 path rush
 Pennsylvania rush, Coville's rush
 shore rush, grassleaf rush
 slimpod rush
 soft rush
 tapertip rush
 toad rush
 weak rush

SCIENTIFIC NAME

Juncus pelocarpus E. Mey.
Juncus megacephalus M.A. Curtis
Juncus elliotii Chapm.
Juncus canadensis J. Gay ex Laharpe
Juncus dichotomus Elliott
Juncus coriaceus Mack.
Juncus repens Michx.
Juncus polycephalus Michx.
Juncus roemerianus Scheele
Juncus scirpoides Lam.
Juncus tenuis Willd.
Juncus gymnocarpus Coville
Juncus marginatus Rostk.
Juncus diffusissimus Buckley
Juncus effusus L.
Juncus acuminatus Michx.
Juncus bufonius L.
Juncus debilis A. Gray

INDEX OF EMERGENTS

SCIENTIFIC NAME

Bacopa caroliniana (Walter) B.L. Rob.
Bacopa monnieri (L.) Pennell
Canna flaccida Salisb.
Crinum americanum L.
Habenaria repens Nutt.
Hymenocallis spp.
Iris hexagona Walter
Lachnanthes caroliniana (Lam.) Dandy
Lobelia cardinalis L.
Lobelia glandulosa Walter
Ludwigia repens J.R. Forst.
Nelumbo lutea Willd.
Nuphar lutea (L.) Sm.
Nymphaea odorata Aiton
Nymphoides aquatica (J.F.Gmel.) Kuntze
Orontium aquaticum L.
Peltandra sagittifolia (Michx.) Morong
Peltandra virginica (L.) Schott
Polygonum spp.
Pontederia cordata L.
Sagittaria spp.
Saururus cernuus L.
Thalia geniculata L.
Xyris spp.

COMMON NAME

alligatorflag, fireflag
 American lotus
 arrowhead
 banana-lily, big floating heart
 blue-waterhyssop, lemon bacopa
 cardinal flower
 creeping primrose willow
 dixie iris, prairie iris
 fragrant water-lily
 glades lobelia
 golden canna, bandanna-of-the-Everglades
 golden club
 green arrow arum
 lizard's tail
 pickerelweed
 red-root
 smartweed, knotweed
 spadder dock
 spiderlilies
 spoon flower
 swamp lily, string lily
 waterhyssop, herb-of-grace
 water-spider orchid, floating orchid
 yelloweyed-grass

COMMON NAME

blue-waterhyssop, lemon bacopa
 waterhyssop, herb-of-grace
 golden canna, bandanna-of-the-Everglades
 swamp lily, string lily
 water-spider orchid, floating orchid
 spiderlilies
 dixie iris, prairie iris
 red-root
 cardinal flower
 glades lobelia
 creeping primrose willow
 American lotus
 spadder dock
 fragrant water-lily
 banana-lily, big floating heart
 golden club
 spoon flower
 green arrow arum
 smartweed, knotweed
 pickerelweed
 arrowhead
 lizard's tail
 alligatorflag, fireflag
 yelloweyed-grass

SCIENTIFIC NAME

Thalia geniculata L.
Nelumbo lutea Willd.
Sagittaria spp.
Nymphoides aquatica (J.F. Gmel.) Kuntze
Bacopa caroliniana (Walter) B.L. Rob.
Lobelia cardinalis L.
Ludwigia repens J.R. Forst.
Iris hexagona Walter
Nymphaea odorata Aiton
Lobelia glandulosa Walter
Canna flaccida Salisb.
Orontium aquaticum L.
Peltandra virginica (L.) Schott
Saururus cernuus L.
Pontederia cordata L.
Lachnanthes caroliniana (Lam.) Dandy
Polygonum spp.
Nuphar lutea (L.) Sm.
Hymenocallis spp.
Peltandra sagittifolia (Michx.) Morong
Crinum americanum L.
Bacopa monnieri (L.) Pennell
Habenaria repens Nutt.
Xyris spp.

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