

---

---

# TREES

---

---



# TABLE OF CONTENTS

## TREES

Grading Shade Trees .....	3
Introduction .....	3
Steps for Determining the Grade of a Tree .....	4
Determining the Quality of Trunk Structure .....	10
Determining the Quality of Branch Arrangement .....	11
Determining the Structural Uniformity of the Crown .....	12
Determining if Pruning Cuts Were Made Correctly .....	13
Type One Matrix — Spreading & Rounded Shapes .....	14
Type Two Matrix — Pyramidal Shapes .....	20
Type Three Matrix — Columnar/Upright Shapes .....	26
Type four Matrix — Vase Shapes .....	30
Type Five Matrix — Oval Shapes .....	34
Index of Trees Listed by Common Name & Matrix Type .....	37
Index of Trees Listed by Scientific Name & Matrix Type .....	41
Glossary of Tree Terms .....	45
References .....	48
Shade Tree Appendix .....	49



# GRADING SHADE TREES

## INTRODUCTION

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

Large-maturing trees which are allowed to develop a double or multiple trunk should not be planted. These are sturdy when they are young but could become increasingly hazardous as they grow larger. Except for small-maturing trees normally grown with multiple trunks, such as crape-myrtle, buttonwood, Japanese ligustrum and others, nursery trees should have one trunk up through the center to the top of the tree. Live oak and some other trees can grow with a modified dominant leader as shown in Fig. 1 on page 10 (Florida Fancy). Branch diameter should not be larger than  $\frac{2}{3}$  the diameter of the trunk measured directly above the branch. There should be no flush cuts anywhere on the tree and no open injuries on the trunk or major branches. The crown should be full of foliage and show little, if any, evidence of chlorosis, necrosis, disease or insect infestation. The root ball should be appropriately sized (see any matrix, e.g., page 14). Such a tree is given the top grade—Florida Fancy.

Trees graded Florida #1 may require some corrective pruning so they develop good trunk and branch structure. They may have minor trunk injuries or could have other defects. Defects can be corrected by pruning the tree once or twice within a year or two after planting.

Florida #2 is a lesser grade. These trees require major corrective pruning to form a structurally strong tree, or are badly misshapen. Great skill and effort (two or more prunings) are required to develop a structure in these trees which will promote longevity. Defects may take several years to correct.

The lowest grade is a Cull. Defects are not correctable. These trees lack vigor and/or have poor

trunk and branch structure or circling roots. They have other problems such as open wounds, flush cuts or loose root ball which may prevent them from becoming established in the landscape. If they become established, long life is unlikely.

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

Special Note: There is a specialty market for trees trained into forms which are not typical of their normal growth habit. Examples include standards, braided stems, poodles, espalier, topiary and bonsai, to name a few. When grading these trees, the height, spread and root-ball diameter-to-caliper relationships outlined in the matrices for these grades and standards do not apply. Therefore, when grading such trees, enter the grading process outlined below beginning at Step 6, skipping Steps 1 through 5. Large-maturing trees, such as oaks, are always graded beginning with Step 1 unless the planting specifications indicate that the trees will be maintained as topiaries or other small, clipped specimens throughout their lives in the landscape.

Grades established for trees (Florida Fancy, Florida #1, and Florida #2) do not apply to trees used in wetland mitigation. For trees used in wetland mitigation, refer to the wetland section of this manual.



## STEPS FOR DETERMINING THE GRADE OF A TREE

Skip Steps 1, 2 and 4 (below) if you are grading crape-myrtle, cattleya guava, wax privet, yaupon holly, lignum-vitae, wax-myrtle or other, similar small-maturing ornamental trees.

Skip Steps 1 through 5 below if you are grading specialty plants like standards, braided stems, poodles, espalier, topiary and bonsai; and ignore Steps 9a, 9f, 9h, 9i and 9j. In addition, ignore Step 8a if grading espaliers. Skip Step 2 if you are grading conifers (e.g., pines), magnolias, hollies, loblolly bay, bald-cypress and other narrow, upright trees.

Step 1. Look inside the crown of the tree at the trunk form. Grade the tree according to the drawings and captions in Fig. 1 (page 10). Trees with one dominant trunk are graded Florida Fancy. Those with double or multiple trunks are given a lesser grade depending on the extent of the defect. Circle the appropriate grade below based on trunk form only.

Florida      Florida      Florida      Cull  
Fancy          #1            #2

Step 2. Check branch arrangement. Grade the tree according to the drawings and captions in Fig. 2 (page 11). Trees with optimum branch arrangement are graded as Florida Fancy. Those with branch arrangement defects are given a lesser grade according to the extent of the defects. Circle the appropriate grade below based on branch arrangement only. Note: All conifers (e.g., pines), magnolias, hollies, loblolly bay, bald-cypress and other narrow, upright trees are exempt from Step 2.

Florida      Florida      Florida      Cull  
Fancy          #1            #2

Step 3. Choose the appropriate tree matrix type based on the natural form of the tree as it should appear in the nursery (see Index of Trees on pages 37-44 for guidance).

Appropriate matrix type: \_\_\_\_\_

Refer to the appropriate matrix type for Step 5. Matrix 1 - page 14; Matrix 2 - page 20; Matrix 3 - page 26; Matrix 4 - page 30; Matrix 5 - page 34.

Step 4. Measure the caliper of the trunk.

Caliper: \_\_\_\_\_

Step 5. Locate the caliper of the tree in the left column of the appropriate matrix chart chosen in Step 3. (For multistemmed crape-myrtle, cattleya guava, wax privet, wax-myrtle or other similar trees, find the container size or root-ball diameter of the plant you are grading and ignore the caliper). Grade the tree according to the minimum crown spread diameter (see Fig. 5 on page 45). A tree must have a spread equal to or larger than the minimum for the grade. Circle the appropriate grade below based on minimum crown spread only.

Florida      Florida      Florida      Cull  
Fancy          #1            #2

Step 6. Grade the tree according to structural uniformity of the crown (see Fig. 3 on page 12). Circle the appropriate grade below based on structural uniformity only. Skip Step 6 when grading weeping yaupon holly and other trees with a naturally irregular canopy.

Florida      Florida      Florida      Cull  
Fancy          #1            #2

Step 7. What is the lowest grade determined in Steps 1, 2, 5 and 6?

Grade: \_\_\_\_\_

Step 8. If any of the following statements (a, b, c, d, e, f, or g) are true, reduce the grade determined in Step 7 by one.

- |                          |                          |  |
|--------------------------|--------------------------|--|
| T                        | F                        | a) The tree with a trunk caliper larger than 1" requires a stake to hold it erect <sub>2</sub> |
| <input type="checkbox"/> | <input type="checkbox"/> | b) The root ball or container is undersized (consult any tree matrix).                         |
| <input type="checkbox"/> | <input type="checkbox"/> | c) The root ball on a B&B tree is not secured tightly with pins, twine or wire.                |
| <input type="checkbox"/> | <input type="checkbox"/> | d) The tree is excessively root-bound.   |
| <input type="checkbox"/> | <input type="checkbox"/> |  |



T F

- e) There is evidence that one or more large roots (greater than 1/5 the diameter of the trunk) were growing out of the container or grow bag (see Fig. 9 on page 47).
- f) The crown is thin and sparsely foliated. Many evergreen oaks and other trees are thin and sparsely foliated in late winter/early spring just prior to the spring growth flush. Recently dug field-grown trees might also be thin. Do not downgrade for this.
- g) More than 5% of branches have tip die-back.

Grade: \_\_\_\_\_

Step 9. If two of the following statements (a-j) are true, reduce the grade determined in Step 8 by one. If more than two of the statements (a-j) are true, reduce the grade by two. Note: It takes only one true statement to reduce a Florida Fancy to a Florida #1. Three true statements are required to reduce a Florida Fancy to a Florida #2.

T F

- a) Tree height (see Fig. 11 on page 47) is shorter than the minimum height or taller than the maximum height specified in the appropriate matrix chart. Plants such as wax privet and other small multistemmed specialty plants should not be downgraded if they are shorter than the minimum height.
- b) Flush cuts were made when pruning branches from the trunk (see Fig. 4 on page 13).
- c) Branch stubs are left beyond the branch collar (see Fig. 4 on page 13). A branch stub can be removed and not reduce the grade.
- d) Open trunk wounds or other bark injury is evident. (Open trunk wounds must be less than 10% of the trunk circumference and less than 2 inches tall on Florida #1 trees. An open pruning scar on the trunk resulting from removing a branch is not considered an open trunk wound.)
- e) Graft unions are not complete.

T F

- f) More than the lower 40% of the trunk is free of branches. (The portion of the lower trunk with shortened, temporary branches is not considered part of the clear trunk; it is considered part of the canopy.) \*
- g) More than 5% of the leaves are chlorotic; or more than 5% of the canopy exhibits damage from pests and diseases. Note: A Florida #1 cannot have more than 10% of the leaves chlorotic or more than 10% of the canopy damaged from pests or diseases.
- h) Most leaves are smaller than normal.
- i) There is bark included between the trunk and a major lateral branch or between main trunks (Fig. 7a on page 46).
- j) Trunks and/or major branches are touching. Secondary branches on major branches may touch each other.

Final Grade: \_\_\_\_\_

Step 10. The tree is a Cull if it has a root greater than 1/10 the diameter of the trunk circling around more than 1/3 of the trunk in the top half of the root ball. Circling roots can be found on the periphery of the root ball or inside the root ball (Fig. 8 on page 46). Those inside the root ball result from being in a smaller container when the tree was younger. Circling roots less than 1/3 the trunk diameter can be cut at the point where they begin to circle. Following cutting, the tree is no longer a Cull.

\*If planting specifications require that a larger portion of the trunk should be clear of branches, do not downgrade for Step 9f.



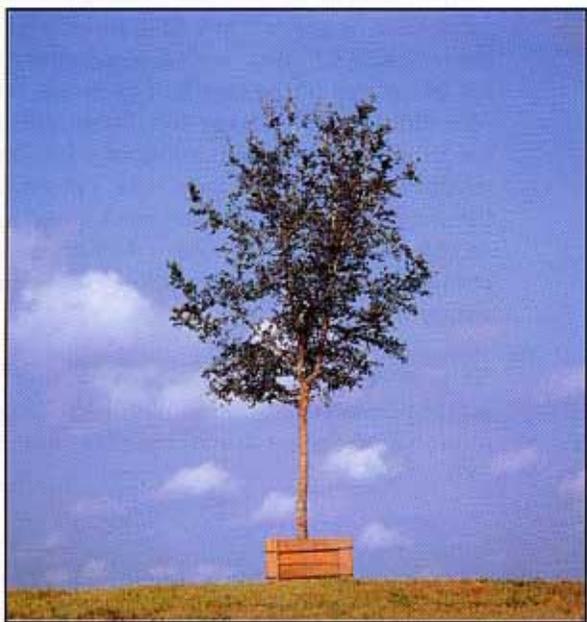
## EXAMPLE I

Grade a container-grown live oak (shown below) with a 3" diameter trunk, 6" above the ground. The tree is 14' tall with a 66" branch spread. The crown is full and the foliage is normal-sized and dark green. The root ball measures 34" in diameter and is tightly bound in wire. The bark is all intact and there are no flush cuts evident.

Step 1. Look inside the crown of the tree at the trunk form. Grade the tree according to the drawings and captions in Fig. 1 (page 10). Trees with one dominant trunk are graded Florida Fancy. Those with double or multiple trunks are given a lesser grade depending on the extent of the defect.

Grade: Florida #2

The drawings and description of a Florida #2 in Fig. 1 most closely match the condition of the example tree. That is, the trunk divides into 2 equal-sized trunks in the bottom 1/2 of the tree. (This is difficult to see in this photograph. Look carefully at the bottom of the canopy.)



*Quercus virginiana* - live oak  
Florida #2

Step 2. Check branch arrangement. Grade the tree according to the drawings and captions in Fig. 2 (page 11). Trees with optimum branch arrangement are graded as Florida

Fancy. Those with branch arrangement defects are given a lesser grade according to the extent of the defects.

Grade: Florida Fancy

Branches are well-spaced along the trunk of the example tree and none are growing in the vertical position.

Step 3. Choose the appropriate tree matrix type based on the natural form of the tree as it should appear in the nursery (see Index of Trees on pages 37-44 for guidance).

Appropriate matrix type: Matrix 1, Spreading and round trees. (The Index of Trees indicates Matrix 1 is appropriate for live oak.)

Step 4. Measure the caliper of the trunk.

Caliper: 3"

The caliper of the example tree is 3".

Step 5. Locate the caliper of the tree in the left column of the appropriate matrix chart chosen in Step 3. Grade the tree according to the minimum crown spread diameter (see Fig. 5 on page 45). A tree must have a spread equal to or larger than the minimum for the grade.

Grade: Florida Fancy

Find the three numbers in Matrix 1 indicating minimum crown spread diameter for the 3" caliper example tree. The tree is a Florida Fancy because the crown spread is 66".

Step 6. Grade the tree according to structural uniformity (see Fig. 3 on page 12).

Grade: Florida Fancy

The example tree has a nearly uniform crown as shown in Fig. 3.



Step 7. What is the lowest grade determined in steps 1, 2, 5 and 6?

Grade: Florida #2

The grade determined in Step 1 = Florida #2, in Step 2 = Florida Fancy, in Step 5 = Florida Fancy and in Step 6 = Florida Fancy.

Step 8. If any of the following statements are true, reduce the grade determined in Step 7 by one.

T F

- a) The tree requires a stake to hold it erect.
- b) The root ball or container is undersized (consult any matrix).
- c) The root ball is not secured tightly with pins, twine or wire.
- d) Tree is excessively root-bound.
- e) There is evidence that one or more large roots (greater than  $\frac{1}{8}$  the diameter of the trunk) were growing out of the container or grow bag (see Fig. 9 on page 47).
- f) The crown is thin and sparsely foliated.
- g) More than 5% of branches have tip die-back.

Grade: Florida #2

The grade determined in Step 7 is not reduced because all statements in Step 8 are false.

Step 9. If two of the following statements (a-j) are true, reduce the grade determined in Step 8 by one. If more than two of the statements (a-j) are true, reduce the grade by two. Note: It takes only one true statement to reduce a Florida Fancy to a Florida #1. Three true statements are required to reduce a Florida Fancy to a Florida #2.

T F

- a) Tree height (see Fig. 11 on page 47) is shorter than the minimum height and taller than the maximum height specified in the appropriate matrix chart. Plants such as wax privet and other multistemmed specialty plants should not be downgraded if shorter than the minimum height.

- b) Flush cuts were made when pruning branches from the trunk (see Fig. 4 on page 13).
- c) Branch stubs are left beyond the branch collar (see Fig. 4 on page 13). A branch stub can be removed and not reduce the grade.
- d) Open trunk wounds or other bark injury is evident. (Open trunk wounds must be less than 10% of the trunk circumference and less than 2 inches tall on the Florida #1 trees.)
- e) Graft unions are not complete.
- f) The bottom 40% of the tree has no branches.
- g) More than 5% of the leaves are chlorotic, or more than 5% of the canopy exhibits damage from pests and diseases. Note: A Florida #1 cannot have more than 10% of the leaves chlorotic or more than 10% of the canopy damaged from pests or diseases.
- h) Most leaves are smaller than normal.
- i) There is bark included between trunk and a major lateral branch or between main trunks (see Fig. 6 on page 45).
- j) Trunks and/or major branches are touching.

Step 10. The tree is a Cull if it has a root greater than  $\frac{1}{10}$  the diameter of the trunk circling around more than  $\frac{1}{3}$  of the trunk (see Fig. 8 on page 46). The tree has no such circling roots, so this step does not apply.

Final Grade: Florida #2

The grade determined in Step 8 is Florida #2. None of the statements in Steps 9 and 10 are true, so the grade remains Florida #2.



## EXAMPLE 2

Grade a wax privet 4 feet tall with a 6-foot crown spread grown in a 15-gallon container (shown below). There is a root circling around  $\frac{1}{5}$  the trunk just below the surface of the media 2 inches from the trunk. The tree stands erect by itself and is well-established in the container. There is chlorosis on 4% or 5% of the foliage, and the tree was topped in the nursery to create a denser crown. Most leaves are smaller than normal. There is bark included between the trunk and several major branches, but no trunks or major branches are touching one another.

Skip Steps 1, 2 and 4 because you are grading a multistemmed small-maturing tree.

Step 3. Choose the appropriate tree matrix type based on the natural form of the tree as it appears in the nursery (see Index of Trees on pages 37-44 for guidance).

Appropriate tree matrix type: Matrix 4, vase shaped. (The Index of Trees indicates Matrix 4 is appropriate for wax privet.)

Step 5. Locate the caliper of the tree in the first column of the appropriate matrix type chosen in Step 3. (For multistemmed crape-myrtle, cattleya guava, wax privet, wax-myrtle or other similar trees of small stature, find the container size or root ball diameter of the plant you are grading, and ignore the caliper.) Grade the tree according to the minimum crown spread diameter (see Fig. 5 on page 45). A tree must have a spread equal to or larger than the minimum for that grade.

Grade: Florida Fancy

Find the three numbers in Matrix 4 indicating minimum crown spread diameter for a 15-gallon tree. The tree is Florida Fancy because the crown spread diameter is 6 feet, above the 36-inch minimum for Florida Fancy.

Step 6. Grade the tree according to structural uniformity (see Fig. 3 on page 12).

Grade: Florida #1

The example tree has a portion of the crown missing and most closely matches the Florida #1 drawing in Figure 3.

Step 7. What is the lowest grade determined in Steps 1, 2, 5 and 6?

Grade: Florida #1

Steps 1 and 2 were skipped because the tree you are grading is a small, multi-stemmed tree, the grade determined in Step 5 was Florida Fancy, and the grade determined in Step 6 was Florida #1. The lowest grade is Florida #1.

Step 8. If any of the following are true, reduce the grade determined in Step 7 by one.

T F

- a) The tree requires a stake to hold it erect.
- b) The root ball or container is undersized (consult any tree matrix).
- c) The root ball is not secured tightly with pins, twine or wire.
- d) The tree is excessively root bound.



*Ligustrum japonicum* - wax privet  
Florida#1



- T F
- e) There is evidence that one or more large roots (greater than  $\frac{1}{5}$  the diameter of the trunk) were growing out of the container or grow bag (see Fig. 9 on page 47).
  - f) The crown is thin and sparsely foliated.
  - g) More than 5% of branches have tip die-back.

Grade: Florida #1

There is no reason to reduce the grade from Step 7 since none of the above are true.

Step 9. If two of the following are true, reduce the grade determined in Step 8 by one. If more than two of statements a-j are true, reduce the grade by two. Note: It takes only one true statement to reduce a Florida Fancy to a Florida #1. Three true statements are required to reduce a Florida Fancy to a Florida #2.

- a) Tree height (see Fig. 11 on page 47) is shorter than the minimum height and taller than the maximum height specified in the appropriate matrix chart. Plants such as wax privet and other small multistemmed specialty plants should not be downgraded if they are shorter than the minimum height.
- b) Flush cuts were made when pruning branches from the trunk (see Fig. 4 on page 13).
- c) Branch stubs are left beyond the branch collar (can remove a branch stub and not reduce the grade provided the stub is less than 2 inches long).

- T F
- d) Open trunk wounds or other bark injury is evident. (Open trunk wounds must be less than 10% of the trunk circumference and less than 2 inches tall on Florida #1 trees.)
  - e) Graft unions are not complete.
  - f) The bottom 40% of the tree has no branches.
  - g) More than 5% of the leaves are chlorotic; or more than 5% of the canopy exhibits damage from pests and diseases. Note: A Florida #1 cannot have more than 10% of the leaves chlorotic or more than 10% of the canopy damaged from pests or diseases.
  - h) Most leaves are smaller than normal.
  - i) There is bark included between trunk and a major lateral branch or between main trunks (see Fig. 7 on page 46).
  - j) Trunks and/or major branches are touching.

Final Grade: Florida #2

Two of the above statements are true: (h) and (i). Therefore, the tree is downgraded from Step 8 to Florida #2. Two statements need to be true in order to downgrade a Florida #1 to Florida #2.

Step 10. The tree is a Cull if it has a root circling around more than  $\frac{1}{3}$  of the trunk in the top half of the root ball. There is a circling root but it only circles about  $\frac{1}{5}$  of the trunk so the grade is not reduced. If the root circled more than  $\frac{1}{3}$  of the trunk, the tree would be a Cull (see Fig. 8 on page 46).



## STEP 1—Determining the Quality of Trunk Structure

Instructions: Locate the drawing, caption and associated text below that most closely represents the trunk structure of the tree you are grading. Circle the appropriate tree grade at the end of Step 1 on page 2.  
(For photographic examples see Shade Tree Appendix pages 49-56.)

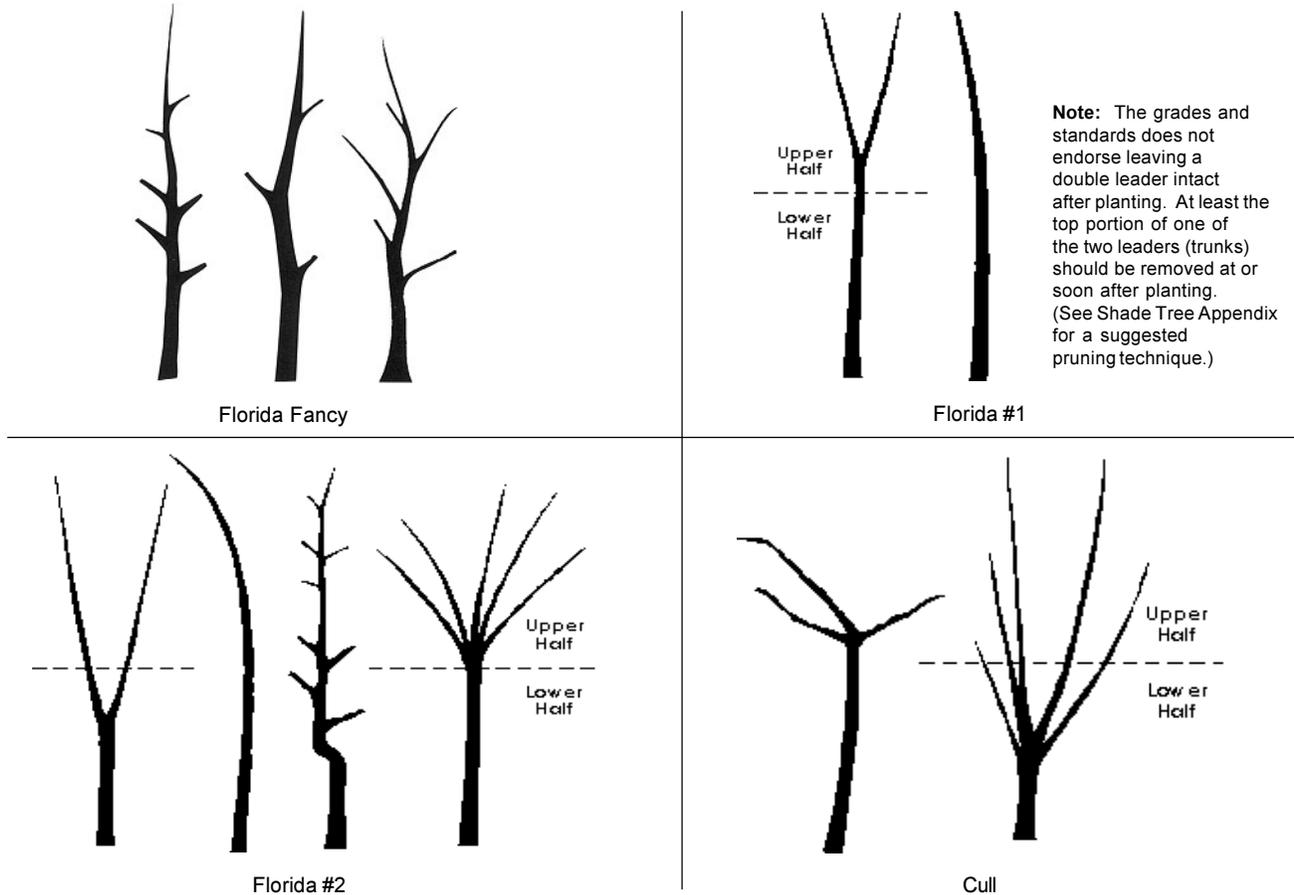


Figure 1.

**Florida Fancy**—There is one trunk, more or less in the center of the tree as shown above. It may be straight or have a very slight bow less than 5°. Some trees such as Chinese elm, live oak, royal poinciana, Jerusalem thorn, mahogany and some others can be grown with a modified (not straight) trunk as shown on the right and center. The tip of the leader on the main trunk must be intact and its terminal bud must be the highest part of the tree. No trunk or branch can have a diameter greater than  $\frac{2}{3}$  the trunk diameter measured directly above the branch crotch.

**Florida #1**—The trunk branches (forks) into two nearly equal-diameter trunks in the upper  $\frac{1}{2}$  of the tree. (If one trunk is  $\frac{2}{3}$  or less than the diameter of the other trunk, they do not have equal diameters, making the trunk Florida Fancy.) A noticeable but small void will be left in the crown after removing the top portion of one of the trunks. If there is one trunk, but it has a 5° to 15°

bow, grade it Florida #1. The tip of the leader on the main trunk must be intact and its terminal bud must be the highest part of the tree.

**Florida #2**—The trunk branches into two nearly equal trunks along the lower  $\frac{1}{2}$  of the tree as shown on the left; or, the trunk branches into three or more nearly equal-diameter trunks in the upper  $\frac{1}{2}$  of the tree as shown on the right. (Do not downgrade the tree if competing trunks are  $\frac{2}{3}$  or less the diameter of one main trunk measured above the crotch.) Pruning to create only one trunk will leave a large void in the crown. If there is one trunk, but it has a bow greater than 15° or a dogleg (see Glossary), grade it Florida #2.

**Cull**—The trunk branches into three or more nearly equal-diameter trunks along the lower  $\frac{1}{2}$  of the trunk.



## STEP 2—Determining the Quality of Branch Arrangement

Instructions: Locate the drawing, caption and associated text below that most closely represents the branch structure of the tree you are grading. Circle the appropriate tree grade at the end of Step 2 on page 4. Note: All conifers, magnolias, hollies, loblolly bay and other narrow, upright trees are exempt from Step 2. Major branches on trees less than 5 feet tall do not have to be 4" or 6" apart to meet Florida #1 or Florida Fancy standards, respectively.

(For photographic examples see Shade Tree Appendix pages 49-56.)

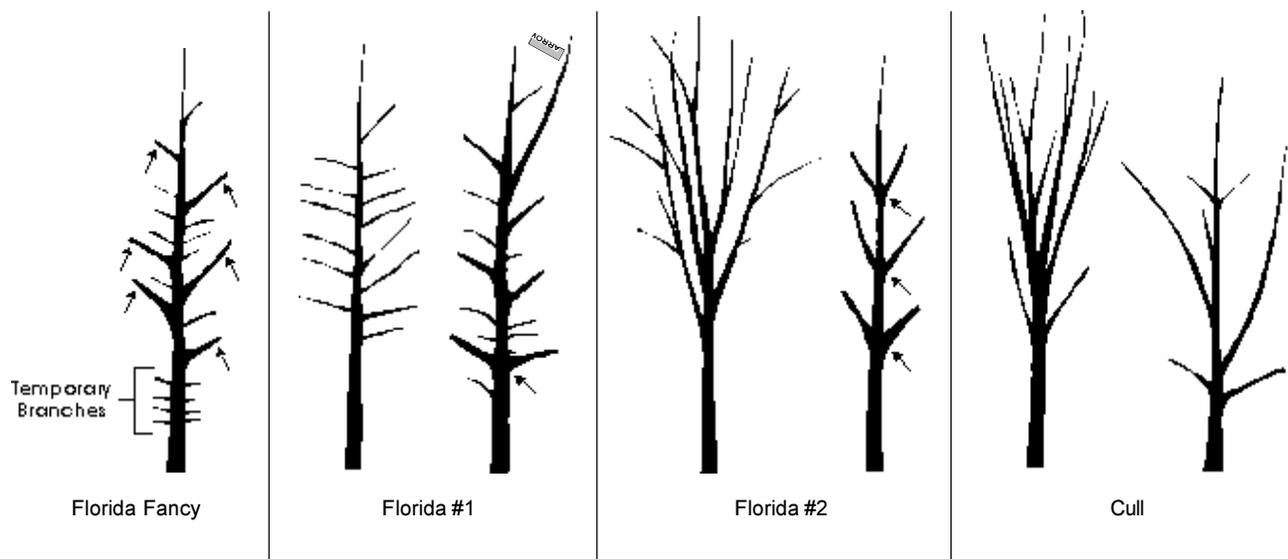


Figure 2.

**Florida Fancy**—Several branches are larger in diameter (and obviously more dominant) than others. These (indicated by arrows) should be spaced at least 6" apart along the trunk. No branches are greater than  $\frac{2}{3}$  the diameter of the trunk measured directly above the branch. No major branches are oriented nearly vertical with the trunk. There may be temporary branches on the lower trunk, but these should be no larger than  $\frac{1}{5}$  the diameter of the trunk.

**Florida #1**—All branches are more or less equally dominant as shown in the left illustration; or, as shown in the illustration on the right, there are several dominant major branches but two are nearly equal diameter and less than 4" apart (see arrow at bottom). Other branches of nearly equal diameter are at least 4" apart. One branch in the upper half of the tree can be greater than  $\frac{2}{3}$  the diameter of the trunk measured directly above the branch. No branch tips are taller than the trunk (see arrow). Note: A number of trees such as bald-cypress, and others with an excurrent

(strong dominant leader) growth habit naturally have many lateral branches with a similar diameter. These trees should not be downgraded to Florida #1 due to this growth habit. (See page 4 for trees exempt from step 2.)

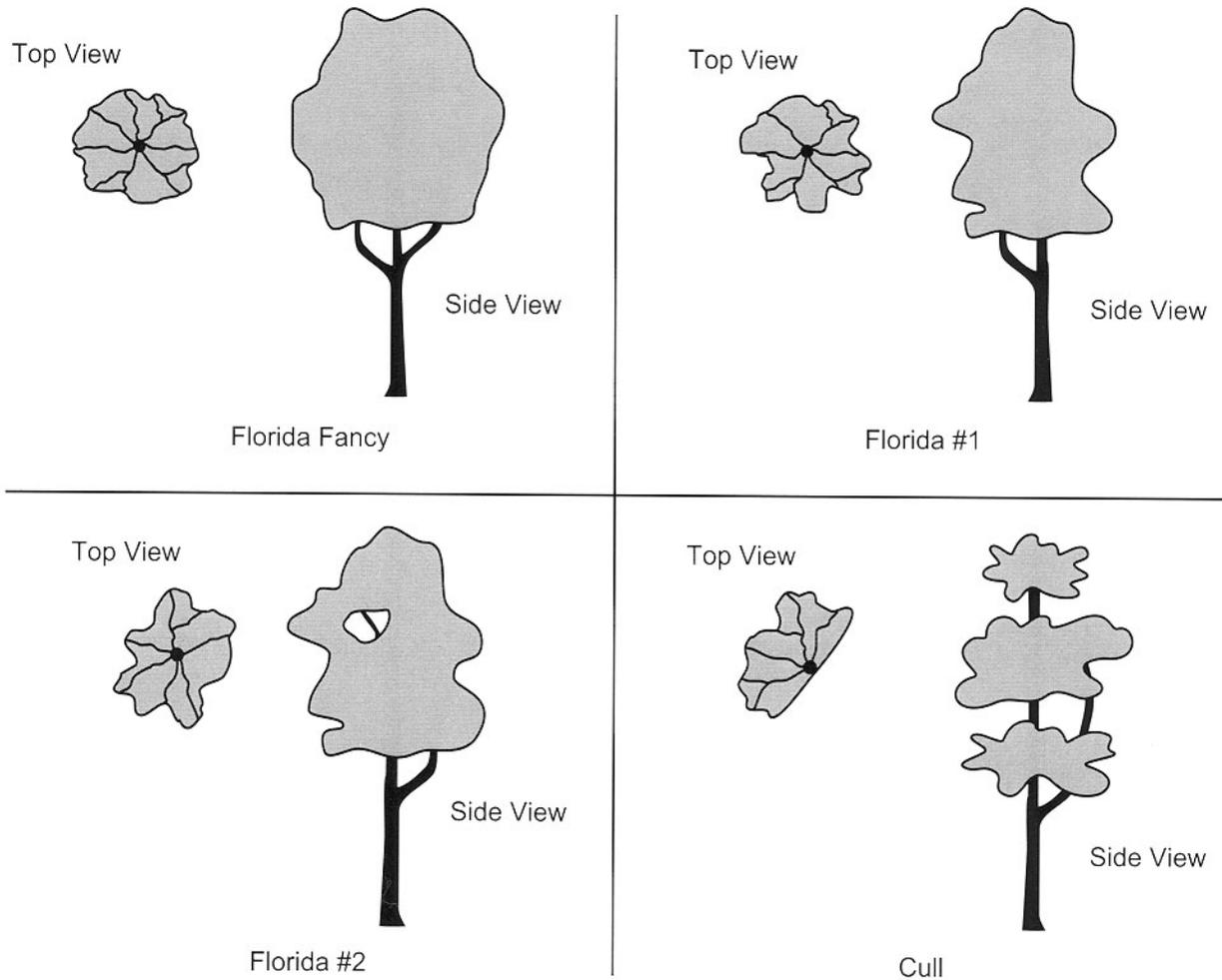
**Florida #2**—Most major branches are oriented vertically; and/or nearly equal-diameter major branches are located within 4" of each other at two or more positions on the trunk (see arrows); and/or one or more branches in the lower half of the tree are larger than  $\frac{2}{3}$  the diameter of the trunk measured directly above the branch.

**Cull**—All branches are growing vertically, and they are forming narrow angles with the trunk; or most major branches are growing from the same point on the trunk. Culls may have only a few large branches as in the illustration on the right. Some are less than 4' from the ground. Several branches of nearly equal diameter are opposite each other on the trunk.



## STEP 6 - Determining the Structural Uniformity of the Crown

Instructions: Identify the drawing, caption and associated text below that most closely represents the structural uniformity of the tree you are grading. Circle the appropriate tree grade at the end of Step 6 on page 4.



**Figure 3.**

**Florida Fancy**—Branches are evenly distributed around the trunk. No major branch is located directly above another. The crown is full of foliage which is evenly distributed around the tree.

**Florida #1**—One major branch may be located directly above another but the others are nearly evenly distributed around the trunk. The crown is not completely full of foliage and there may be some small voids.

**Florida #2**—Branches are not evenly distributed around the trunk. Several are growing from the same side of the trunk and two or more may be located directly above others. The crown has a large void.

**Cull**—The tree is one-sided or is flat-sided. Major branches are growing from only one or two sides of the trunk. There are large gaps in the crown.



## Step 9 - Determining If Pruning Cuts Were Made Correctly

Instructions: Locate the photograph, drawing, caption and associated text below which most closely represents the condition of the pruning scars on the tree you are grading. Check the 'true' column in Step 9-b if incorrect pruning cuts were made. Check the 'false' column if correct pruning cuts were made, and if there are no trunk injuries.

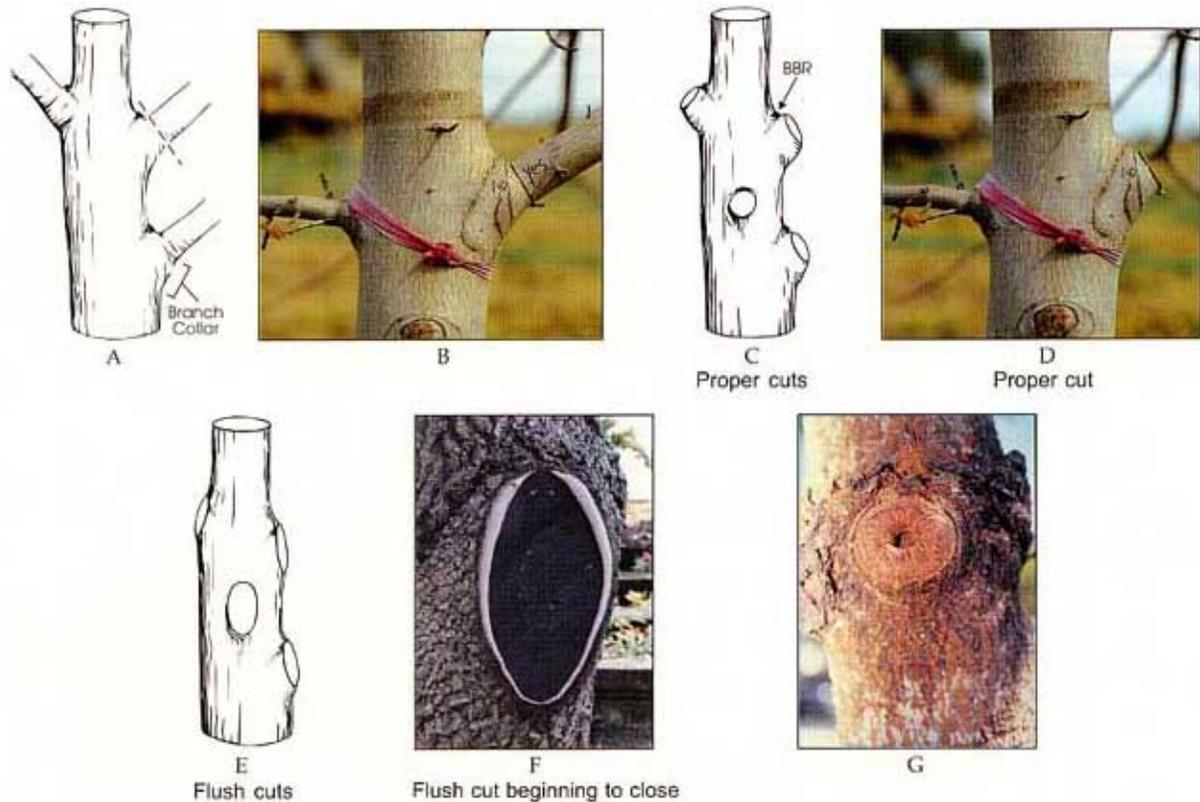


Figure 4.

Fig. 4A—Notice the swelling at the base of each branch. This is trunk tissue (called the branch collar) and helps hold the branch securely on the trunk. A proper cut is made along the dashed line.

Fig. 4B—Cut along the line just to the left of the word 'yes' to properly remove the branch. If the cut is made closer to the trunk, this is a flush cut. If it is made farther from the trunk, a stub will be left.

Fig. 4C—This shows how to properly remove branches from the trunk. Always cut to the outside of the branch collar and branch bark ridge (BBR). Notice that the branch bark ridge is still visible on top of the pruning cut and the pruning scar is nearly circular.

Fig. 4D—This shows a properly executed pruning cut (right hand side of photograph).

Fig. 4E—Never make a flush cut as shown here. Notice that the branch bark ridge is missing from the top of the pruning cut. This improper cut, usually oval, initiates trunk decay and can reduce growth in the nursery and landscape after planting.

Fig. 4F—The pruning scar and the woundwood or callus growth which begins to close over the pruning scar from an improperly executed pruning cut is often shaped like an oval. Callus is often missing from the top or bottom of the pruning scar on an improperly executed pruning cut.

Fig. 4G—Woundwood or callus growth around a proper pruning cut is circular.

Some species have no swelling at the base of branches, and it may be more difficult to determine exactly where to make a proper pruning cut. Always begin the cut to the outside of the branch bark ridge, and angle it away from the trunk.



EXAMPLES
apple, pitch-bauhinia bay, red-camphor tree carambola citrus dogwood, flowering fig, fiddle-leaf fig, rusty fig, weeping floss silk tree goldenrain tree gumbolimbo holly, round kapok laurel, Cuban-lychee loquat

TYPE ONE MATRIX — SPREADING & ROUNDED SHAPES									
CALIPER	MINIMUM TREE HEIGHT	MAXIMUM TREE HEIGHT	MINIMUM CROWN SPREAD DIAMETER			MINIMUM B&B ROOT-BALL DIAMETER	MINIMUM GROW BAG ROOT-BALL DIAMETER	MINIMUM CONTAINER VOLUME	
			FL. FAN.	#1	#2				
1/4"	18"	30"	10"	8"	6"	6"	—	4" Sleeve	
1/2"	24"	6'	14"	12"	8"	8"	—	1 Gal.	
3/4"	4'	8'	30"	24"	18"	14"	—	3 Gal.	
1"	5'	10'	36"	30"	24"	16"	12"	5 Gal.	
1 1/4"	6'	11'	42"	36"	30"	18"	14"	7 Gal.	
1 1/2"	7'	12'	48"	42"	34"	20"	16"	15 Gal.	
2"	8'	15'	54"	48"	42"	24"	18"	15 Gal.	
2 1/2"	9'	16'	60"	54"	48"	28"	18"	25 Gal.	
3"	10'	18'	66"	60"	54"	32"	20"	45 Gal.	
3 1/2"	11'	18'	6'	5 1/2'	5'	36"	24"	65 Gal.	
4"	12'	22'	7'	6 1/2'	6'	40"	30"	95 Gal.	
4 1/2"	14'	24'	8'	7 1/2'	7'	44"	36"	95 Gal.	
5"	16'	26'	10'	9'	8'	48"	36"	95 Gal.	
5 1/2"	17'	28'	11'	10'	9'	50"	—	200 Gal.	
Notes: 1. Trees to be graded under this matrix are listed in the index of trees on pages 37-44. 2. Any liner less than 1/4" caliper shall be a minimum of 12" in height, well-rooted in its container which shall not be less than 2" in diameter. Bare-root trees shall be so noted. 3. Ball depth on B&B stock shall be at least 2/3 of the root-ball diameter shown. For trees larger than 5 1/2" caliper, root-ball diameter shall be 8.5" for each inch of tree caliper. Trees grown in soils with a high water table can have shallower root balls provided the root-ball diameter is increased to the next larger tree size in the table. 4. Red or black mangrove may be a minimum of 18" overall height in a 1-gallon container, 24" overall height in a 3-gallon container. 5. For the purpose of determining minimum root-ball size, cured trees can have a caliper up to 1" larger than indicated in the table.									

EXAMPLES
mahoe mango mangrove, black oak, laurel oak, live oak, sand live oak, water oak, white olive, black-olive, spiny black-pagoda tree, Japanese rubber tree, Indian-sausage tree shaving brush tree silk-cotton tree, red sycamore tamarind weeping willow



### TYPE ONE MATRIX

Scientific Name: *Cinnamomum camphora*  
(L.) Sieb  
Common Name: camphor tree

**Florida Fancy**—Branches are well-distributed along the single trunk.

**Florida #1**—The trunk is straight and nicely formed but more than 5% of the leaves are chlorotic.

**Florida #2**—The crown is not uniform, making the tree, at most, a Florida #1. The tree is downgraded to a Florida #2 because there are no branches on the lower 40% of the trunk, and the tree is too tall for the caliper of the trunk.



Florida Fancy

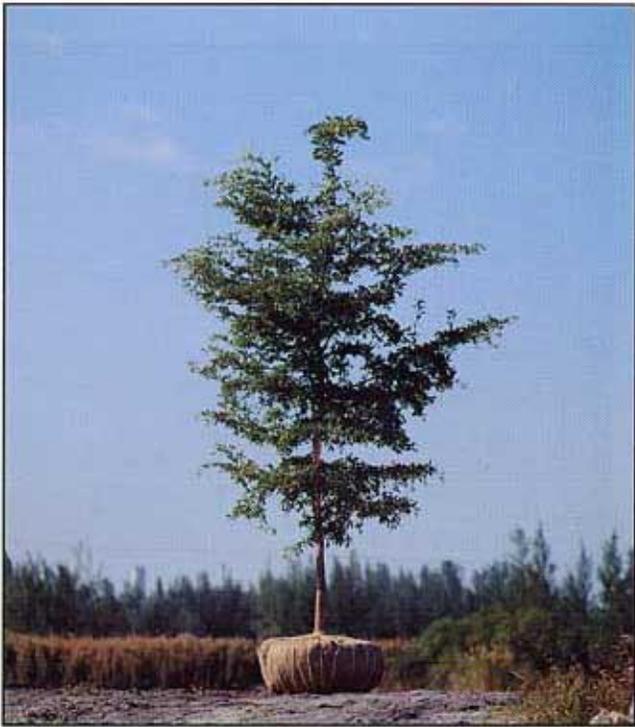


Florida No. 1



Florida No. 2





Florida Fancy

## TYPE ONE MATRIX

Scientific Name: *Bucida buceras*  
Common Name: black-olive

**Florida Fancy**—Branches are well-distributed along a dominant trunk, and the crown is uniform and full of foliage.

**Florida #1**—Branches are well-distributed along a straight dominant trunk, but the crown is not uniform and is thin.

**Florida #2**—The trunk forks in the bottom half of the tree and the canopy is sparse. There are few branches on the tree, and they are not well distributed along the trunk.



Florida No. 1



Florida No. 2



## TYPE ONE MATRIX

Scientific Name: *Citrus sp.*

Common Name: citrus

**Florida Fancy**—The crown is well-formed and nearly symmetrical, and branches are distributed along one trunk.

**Florida #1**—A major branch is growing taller than the leader, and the crown is not full.

**Florida #2**—The trunk forks in the bottom half of the tree.



Florida Fancy



Florida No. 1



Florida No. 2





Florida Fancy

### TYPE ONE MATRIX

Scientific Name: *Platanus occidentalis* L.  
Common Name: sycamore

**Florida Fancy**—The trunk has a slight bend which is acceptable for a Florida Fancy on any species.

**Florida #1**—The trunk forks in the top half of the tree.

**Florida #2**—The trunk is nicely formed, but the crown is one-sided and not uniform.



Florida No. 1



Florida No. 2



## TYPE ONE MATRIX

Scientific Name: *Quercus virginiana* Mill.  
Common Name: live oak

**Florida Fancy**—There is one trunk up through the uniform crown.

**Florida #1**—The crown is uniform, but the trunk divides into two nearly equal-sized trunks in the upper half of the tree. (The foliage hides the divided trunk so you cannot see this in the photograph.)

**Florida #2**—The trunk divides into two nearly equal-sized trunks in the lower half of the tree.



Florida Fancy



Florida No. 1



Florida No. 2



## EXAMPLES

almond, tropical-avocado  
 birch, river  
 bunya-bunya  
 cedar, eastern red-  
 cedar, Japanese-  
 cedar, southern red-  
 cypress, bald-  
 cypress, Leyland  
 fir, China-  
 holly, American

## TYPE TWO MATRIX — PYRAMIDAL SHAPES

CALIPER	MINIMUM TREE HEIGHT	MAXIMUM TREE HEIGHT	MAXIMUM CROWN SPREAD DIAMETER			MINIMUM B&B ROOT-BALL DIAMETER	MINIMUM GROW BAG ROOT-BALL DIAMETER	MINIMUM CONTAINER VOLUME
			FL. FAN.	#1	#2			
1/4"	18"	36"	10"	8"	6"	6"	—	4" Sleeve
1/2"	18"	4'	14"	10"	8"	8"	—	1 Gal.
3/4"	3'	5'	15"	12"	10"	14"	—	3 Gal.
1"	4'	7'	20"	16"	12"	16"	12"	5 Gal.
1 1/4"	5'	9'	24"	20"	16"	18"	14"	7 Gal.
1 1/2"	6'	11'	30"	24"	20"	20"	16"	15 Gal.
2"	6'	14'	42"	36"	30"	24"	18"	15 Gal.
2 1/2"	8'	16'	48"	42"	36"	28"	18"	25 Gal.
3"	9'	18'	58"	48"	40"	32"	20"	45 Gal.
3 1/2"	10'	18'	65"	54"	44"	36"	24"	65 Gal.
4"	10'	22'	6'	5'	4'	40"	30"	95 Gal.
4 1/2"	12'	24'	7'	6'	5'	44"	36"	95 Gal.
5"	14'	26'	8'	7'	6'	48"	36"	95 Gal.
5 1/2"	15'	28'	9'	8'	7'	50"	—	200 Gal.

## Notes:

1. Trees to be graded under this matrix are listed in the index of trees on pages 37-44.
2. Any liner less than 1/4" caliper shall be a minimum of 12" in height, well-rooted in its container which shall not be less than 2" in diameter. Bare-root trees shall be so noted.
3. Ball depth on B&B stock shall be at least 2/3 of the root-ball diameter shown. For trees larger than 5 1/2" caliper, root-ball diameter shall be 8.5" for each inch of tree caliper. Trees grown in soils with a high water table can have shallower root balls provided the root-ball diameter is increased to the next larger tree size in the table.
4. For the purpose of determining minimum root-ball size, cured trees can have a caliper up to 1" larger than indicated in the table.

## EXAMPLES

magnolia, southern  
 mimusops  
 oak, Darlington  
 oak, pin  
 oak, Shumard  
 pine  
 pine, Norfolk Island-  
 pine, screw-  
 silk-oak  
 sweetgum



## TYPE TWO MATRIX

Scientific Name: *X Cupressocyparis leylandii* (Dallim. & A. B. Jackson) Dallim.  
Common Name: Leyland cypress

**Florida Fancy**—Branches are well-distributed along the single trunk, and the crown is uniform.

**Florida #1**—The crown is not uniform because the lower left side is missing.

**Florida #2**—The trunk divides into three trunks in the upper half of the tree, and the canopy is very one-sided.



Florida Fancy



Florida No. 1



Florida No. 2



## TYPE TWO MATRIX

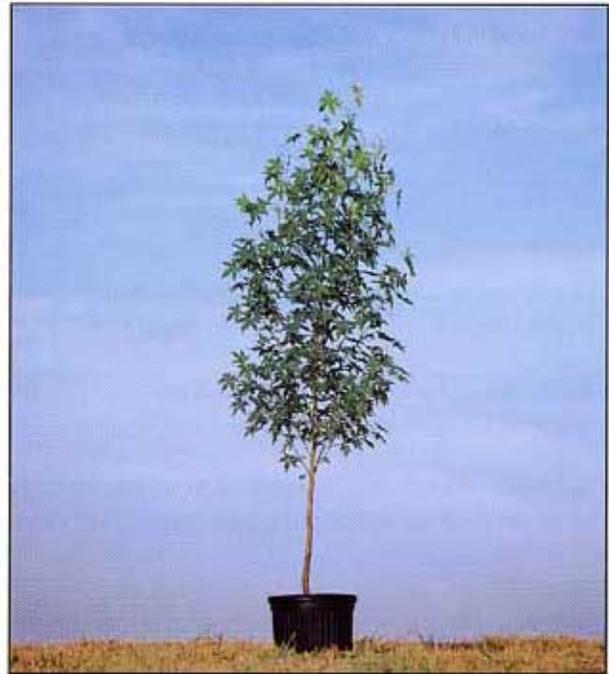
Scientific Name: *Liquidambar styraciflua* L .  
& cvs.

Common Name: **sweetgum**

**Florida Fancy**—There is one straight trunk, branches are well distributed along it, and the crown is full and uniform.

**Florida #1**—The crown is very narrow for this species of tree.

**Florida #2**—There is one trunk, but it has a major dogleg at the bottom of the crown.



Florida Fancy



Florida No. 1



Florida No. 2



## TYPE TWO MATRIX



Florida Fancy

Scientific Name: *Magnolia grandiflora* L.  
Common Name: southern magnolia

**Florida Fancy**—Branches are well distributed along a single trunk.

**Florida #1**—Branches are well distributed along a single trunk, but the crown is too narrow to meet Florida Fancy specifications.

**Florida #2**—The trunk divides into two equal-sized trunks in the lower half of the tree.



Florida No. 1



Florida No. 2



## TYPE TWO MATRIX

Scientific Name: *Pinus elliottii* Engelm.  
Common Name: slash pine

**Florida Fancy**—There is one trunk, and the crown is full of foliage.

**Florida #1**—The trunk divides into two nearly equal-sized trunks in the upper half of the tree.

**Florida #2**—The tip of the leader is not the highest part of the tree.



Florida Fancy



Florida No. 1



Florida No. 2



## TYPE TWO MATRIX



Florida Fancy

Scientific Name: *Taxodium distichum*  
(L.) L. Rich.  
Common Name: bald-cypress

**Florida Fancy**—Branches are well distributed along the single trunk. The crown is uniform and full of foliage.

**Florida #1**—The trunk has a moderate bend or bow, and the crown is not uniform. Either characteristic alone places this tree in the Florida #1 category. The crown is also sparsely foliated.

**Florida #2**—The trunk has a major bend or bow and is sparsely foliated.



Florida No. 1



Florida No. 2



EXAMPLES	TYPE THREE MATRIX — COLUMNAR / UPRIGHT SHAPES									EXAMPLES
	CALIPER	MINIMUM TREE HEIGHT	MAXIMUM TREE HEIGHT	MAXIMUM CROWN SPREAD DIAMETER			MINIMUM B&B ROOT-BALL DIAMETER	MINIMUM GROW BAG ROOT-BALL DIAMETER	MINIMUM CONTAINER VOLUME	
				FL. FAN.	#1	#2				
bay, loblolly cypress, Italian garcinia holly, East Palatka holly, Foster holly, Savannah	1/4"	18"	48"	8"	6"	4"	6"	—	4" Sleeve	holly, weeping yaupon magnolia, 'Little Gem' ponytail schefflera stopper
	1/2"	2'	5'	12"	9"	6"	8"	—	1 Gal.	
	3/4"	3'	6'	16"	12"	8"	14"	—	3 Gal.	
	1"	4'	7'	20"	14"	11"	16"	12"	5 Gal.	
	1 1/4"	4 1/2'	8'	24"	18"	16"	18"	14"	7 Gal.	
	1 1/2"	5'	10'	30"	22"	20"	20"	16"	15 Gal.	
	2"	6'	11'	36"	28"	22"	24"	18"	15 Gal.	
	2 1/2"	7'	12'	42"	34"	25"	28"	18"	25 Gal.	
	3"	8'	13'	48"	40"	28"	32"	20"	45 Gal.	
	3 1/2"	9'	14'	54"	44"	32"	36"	24"	65 Gal.	
	4"	10'	16'	54"	48"	36"	40"	30"	95 Gal.	
	4 1/2"	12'	18'	60"	54"	48"	44"	36"	95 Gal.	
	5"	14'	20'	6'	5'	54"	48"	36"	95 Gal.	
	5 1/2"	16'	22'	7'	6'	5'	50"	—	200 Gal.	
<p>Notes:</p> <ol style="list-style-type: none"> <li>1. Trees to be graded under this matrix are listed in the index of plant materials on pages 37-44.</li> <li>2. Any liner less than 1/4" caliper shall be a minimum of 12" in height, well-rooted in its container which shall not be less than 2" in diameter. Bare-root trees shall be so noted.</li> <li>3. Ball depth on B&amp;B stock shall be at least 2/3 of the root-ball diameter shown. For trees larger than 5 1/2" caliper, root-ball diameter shall be 8.5" for each inch of tree caliper. Trees grown in soils with a high water table can have shallower root balls provided the root-ball diameter is increased to the next larger tree size in the table.</li> <li>4. For the purpose of determining minimum root-ball diameter, cured trees can have a caliper up to 1" larger than indicated in the table.</li> </ol>										



**TYPETHREEMATRIX**

Scientific Name: ***Gordonia lasianthus***  
(L.) Ellis

Common Name: **loblolly bay**

**Florida Fancy**—There is a single trunk, and the crown is full and uniform.

**Florida #1**—There is a single trunk, and the crown is full but not uniform.

**Florida #2**—There is a single trunk, but the crown is thin and not well-balanced.



Florida Fancy



Florida No. 1



Florida No. 2

