

# Florida Grades and Standards for Nursery Plants 2022



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**PALMS**

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# PALMS

## TABLE OF CONTENTS

Introduction to Palm Grading .....	47
Glossary of Palm Grading Terminology .....	48
Palm Grades .....	50
Steps for Determining Palm Grade .....	50
Requirements for Leaf Count and Root Ball Measurement .....	51
Introduction to Palm Specifying .....	53
Glossary of Palm Specification Terminology .....	54
Illustration of Palm Specification Terminology .....	56
Checklist for Potential Specification .....	57
Palm Specification Examples .....	57
Additional Information .....	57

# 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.

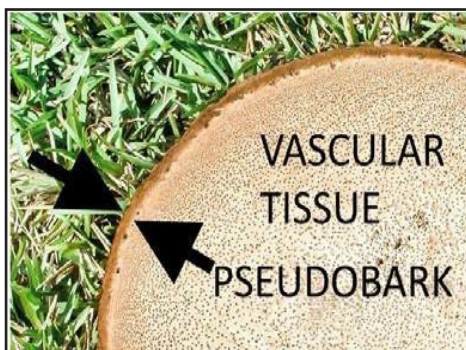


**Necrosis:** Desiccated plant tissue typically but not necessarily brown, tan or gray in color.

**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);

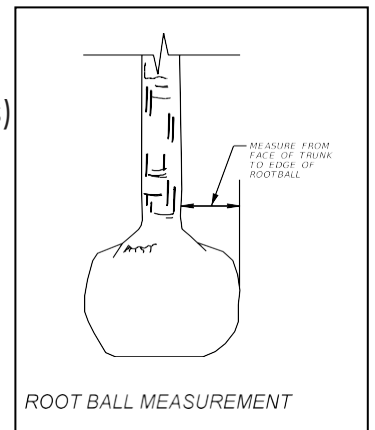


e.g., *Phoenix dactylifera*) that are the result of offshoot or pup removal. These scars present no health risk to the palm.

**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 Step2.

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 buttrot, Thielaviopsis trunkrot or Phytophthora budrot.

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>C. 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>Dyopsis lastelliana</i>	Teddy Bear Palm	8	6	5	6 at any QA		
<i>Dyopsis 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 vershafeltii</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.

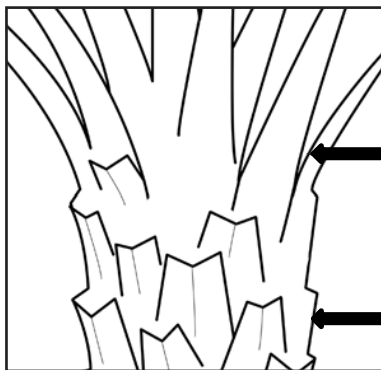
**Caliper:** The diameter of a palm's trunk after final trunk treatment. The height that this diameter is measured must be specified.

**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.

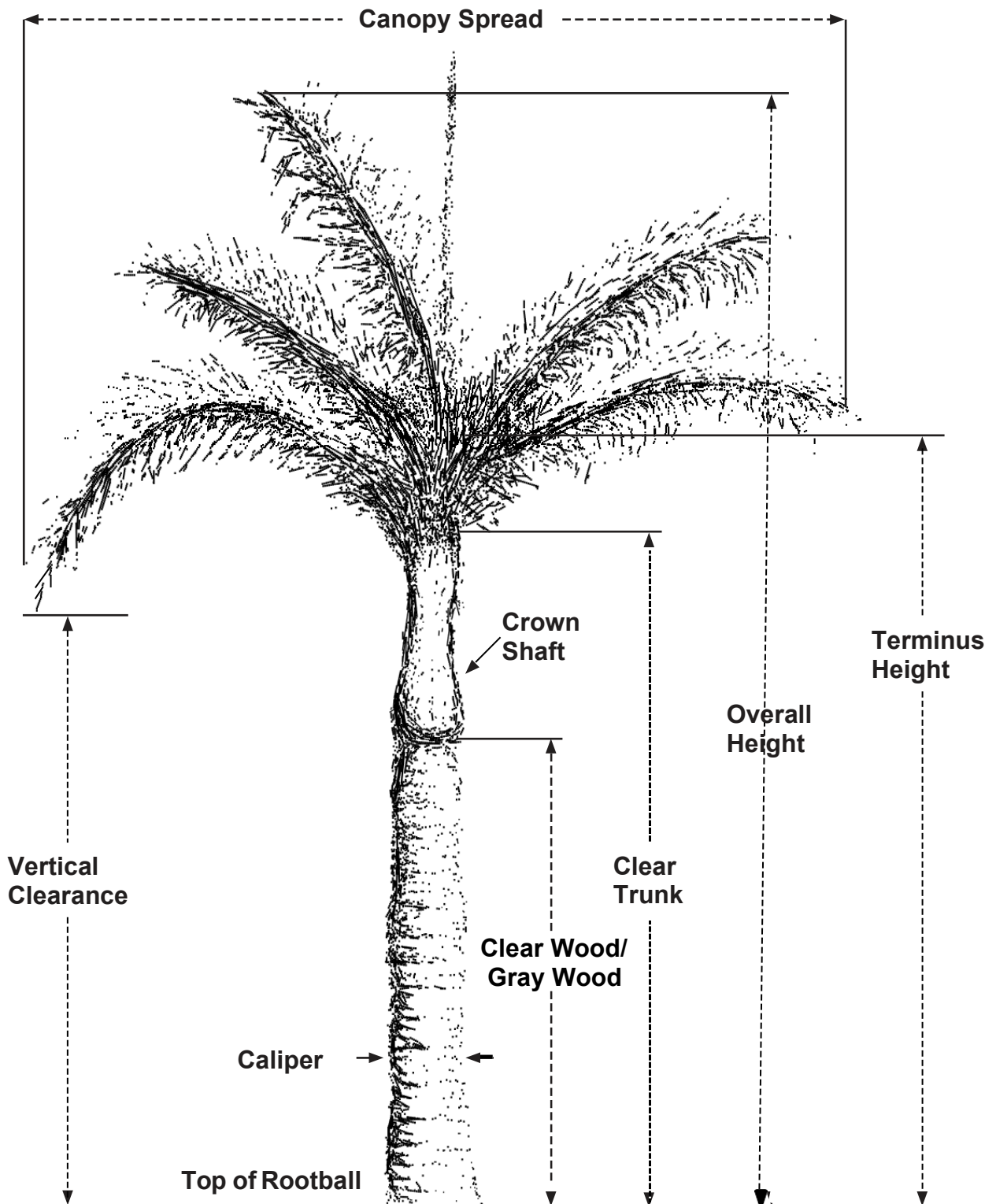


Trunk Constriction

**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](https://edis.ifas.ufl.edu/topic_palms).