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Plant terms for identification

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On June 26, 2020, with UF/Miami-Dade County Extension Commercial Urban Horticulture Agent Henry Mayer, M.S., I zoomed, "Look smart! Know the terminology for proper plant identification." The idea was to learn plant identification by seeing examples of the terms used to describe them.

Recommended books on plant terminology

Beentje, Henk. 2010. The Kew plant glossary. Kew publishing, Royal Botanic Gardens, Kew, Richmond Surrey.

Harrington, H. D. and L. W. Durrell. 1957. How to identify plants. The Swallow Press Incorporated, Chicago, IL.

Harris, James G. and Melinda Woolf Harris. 2001. 2nd edition. Spring Lake Publishing, Spring Lake, UT.

Plant terms in identification

Fundamentals enabling someone to be a master plant identifier are obsessive curiosity on types of plants and practicing again and again looking at them. Plant terms, names, and classification add structure to your skills so you can adapt plant identification to solve new problems and do quality control.

Plant description relies on words to describe a plant by the shape and position of its parts, communicate its appearance to others, and offer proof of identity. Although measured size and color are more objective than shape and position, they are affected more by environment and single allele variation, so are less useful than shape and position. Plant reproductive parts, flowers and fruits, are more stable than vegetative parts, leaves and stems. But at any time most plants, except horticultural plants, are sterile. There is thus a large terminology describing vegetative detail. One of the most forbidding challenges of plant identification is to write a vegetative key or largely vegetative key to a large number of plants. To do this, one must really know the plants and, for dicots, usually start with leaves divided simple vs. compound, and leaves arranged opposite vs. alternate vs. whorled. Several examples are:

Croat, Thomas B. 1978. Flora of Barro Colorado Island. Stanford University Press, Stanford, California. On pages 861-909, Tom wrote an entirely vegetative key to all 700 woody species.

Gentry, Alwyn H. 1993. A field guide to the families and genera of woody plants of northwest South America (Colombia, Ecuador, Peru) with supplementary notes on herbaceous taxa. The University of Chicago Press, Chicago, Illinois. Al wrote a beautiful key in pages 5 to 72 of vegetative traits of families with descriptions.

Lee, David and Stacy West. 2011. Wayside trees of tropical Florida. Tellus Books Melbane, NC. On pages 41-60, David has written a key to 167 tree species that will work any time of the year.

There's no overall key, but this is the best reference on South Florida landscape plants

Rogers, George K. 2016. Landscape plants for South Florida. 5th edition. George Rogers, Palm Beach State College. (Also, visit http://plantbook.org for the very cool plant browsers.)

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Plant terminology and identification games

While teaching Native Plant Identification and Landscape Plant Identification 1 and 2, at Miami Dade College Kendall Campus, Landscape Technology Nursery, I have made many lists of common and scientific names, which I have paired with photographs, as well as lists of plant terms and definitions. Many of these have been submitted to free online testing services with which I am not affiliated.

With all of these you can create your own quizzes and take them.

Start with "Miami Dade College plant terms" (this has drawings) and you can try this as a game:
https://www.cram.com/flashcards/games/jewel/miami-dade-college-plant-terms-10449083
or the non-game version: https://www.cram.com/flashcards/miami-dade-college-plant-terms-10449083

Here is a set just on leaves:
Leaf Characteristics https://www.cram.com/flashcards/leaf-characteristics-4781045

Next, check out: Plant terminology - 124 basic terms on stems, leaves, flowers, and fruits
https://www.cram.com/flashcards/plant-terminology-124-basic-terms-on-stems-leaves-flowers-and-fruits-10446115

And here are three paired sets covering 142 South Florida plant species:

Common names and identification traits of 142 South Florida Landscape Plants
https://www.cram.com/flashcards/common-names-and-identification-traits-of-142-south-florida-landscape-plants-4894708

Scientific names and common names of 142 South Florida landscape plants
https://www.cram.com/flashcards/scientific-names-and-common-names-of-south-florida-landscape-plants-4894690

Scientific names and identification traits of 142 South Florida landscape plants
https://www.cram.com/flashcards/landscape-plant-id-traits-4894296

The next three sets have the same 42 plant species

Spring 2019 - Photos and common names
https://www.cram.com/flashcards/spring-2019-plants-001-to-042-common-names-10525526

Spring 2019 - Scientific names and common names
https://www.cram.com/flashcards/spring-2019-scientific-names-and-common-names-10525557

Spring 2019 - Photos and scientific names
https://www.cram.com/flashcards/plant-id-001-to-024-10515259

Here are two sets by a different provider

Set 01 - Landscape Plant ID 1 - Plants 01 - 125 for Miami Dade College landscape plant identification 1
https://www.flashcardmachine.com/3068543/w4o3

Set 01 - Landscape Plant ID 1 with pictures - Miami Dade College Landscape Plant Identification 1
https://www.flashcardmachine.com/3068605/1bq7

The last one, and maybe others, allow you to "print" which generates a set of all the photos and names so you can study.

Basic plant terms

Type	Term	Definition
General	apex	the tip, for example, for a leaf, the farthest region from the petiole
	base	the bottom end, for example, for a leaf blade, the region nearest the petiole
	bract	a modified leaf near a flower (think of a poinsettia or a bougainvillea)
	bud	meristematic axis or early developmental stem, leaf, or flower with protective covering
	flower	the reproductive outgrowth of a stem, specifically of monocots and dicots
	inflorescence	a group of flowers attached together on a plant
	leaf	generally green, flattened photosynthetic organ of a plan which generally does not produce buds or stems
	root	descending axis of a plant primarily used to absorb water and nutrients from ground and provide support
	stem	the main axis or supportive structure of a plant that can produce roots, stems, leaves, and flowers
Plant form	aquatic plant	plant that normally grows in water
	groundcover	plant that normally grows close to the ground or that is managed to cover an area
	herb	plant with no woody stem and not a palm
	palm	plant in the palm family, Arecaceae, not a true tree
	shrub	medium sized woody plant typically less than 3 m tall and/or with many main stems often spreading
	tree	large woody plant typically at least 3 m tall and/or with one or a few main trunks
	turfgrass	plant in the grass family, Poaceae, that is mowed to make a groundcover
	vine	plant that climbs or scrambles and cannot normally support itself
	woody plant	plant with a hard stem due to secondary xylem produced by vascular cambium and bark on the outside
Leaf	blade	the main expanded part of a leaf (in contrast to petiole and stipules)
	deciduous	leaves fall during part of the year
	evergreen	bearing green leaves throughout the year
	margin	the edge or boundary of an object, for example, of a leaf
	midrib	main vascular supply and support structure of a leaf or leaflet
	netted veined	leaf veins interconnected to form a net (reticulate)
	parallel veined	leaf veins small, generally parallel, all about the same size except the central vein
	petiole	leaf stalk
	rachis	central axis of a compound leaf or of an inflorescence
	stipules	pair of appendages at the base of the petiole or leaf
	tendril	a slender, often coiling organ of support
Leaf - apex	acuminate	tapered to a point with concave sides
	acute	tapered to a point with straight sides
	obtuse	blunt or rounded at the apex
	retuse	with a shallow notch

Leaf - arrangement	alternate	arrangement with only one leaf inserted at a node
	basal	arrangement of leaves arising from the base of the plant
	distichous	arrangement of leaves in two vertical rows
	opposite	arrangement with two leaves inserted opposite each other on the stem
	rosette	dense radiating cluster of leaves usually near ground level
	spiral	arrangement of leaves not in vertical rows but spiraling up the stem
	whorled	arrangement with three or more leaves arising at a node
Leaf - division	bipinnate	twice pinnate, i.e., a decompound leaf with primary divisions divided again
	compound	made of parts, e.g. a completely divided leaf
	dissected	divided into segments
	leaflet	a division of a compound leaf
	palmate	lobed, veined, or divided (palmately compound) from a common point, like the fingers of a hand
	pinna (pinnae)	a primary division of a pinnate or bipinnate leaf
	pinnate	compound leaf with leaflets on a rachis (may be odd pinnate or even pinnate)
	simple	leaf which is one undivided segment (may be lobed)
	trifoliolate	a compound leaf divided into three segments
Leaf - margin	cleft	cut or split about half–way to the middle or base
	crenate	toothed along the margin with but not sharply toothed
	entire	continuous leaf margin, not toothed or lobed
	serrate	toothed along the margin with minute, sharp, forward–pointing teeth
Leaf - shape	cordate	heart–shaped, with the notch at the base
	elliptical	a narrow oval, widest at the middle and the ends equally narrow
	lanceolate	lance–shaped; much longer than wide, attached at the wide end
	linear	narrow, flat shape with parallel sides, at least 4 times longer than wide
	oblanceolate	inversely lance–shaped, attached at the narrow end
	oblong	two to four times longer than broad with nearly parallel sides
	obovate	inversely egg–shaped in outline, attached at the narrow end
	ovate	egg–shaped in outline and attached at the wide end
Leaf - surface	canescent	surface white or gray short hairs
	glabrous	surface smooth, hairless
	glaucous	surface covered with a whitish or bluish waxy coating
	pubescent	surface covered with hairs, especially short, soft hairs
	strigose	surface covered with stiff, appressed hairs
	tomentose	surface covered with tangled, wool–like hairs
Stem	rhizome	a horizontal stem that grows underground
	stolon	a horizontal stem that grows aboveground

Flower	actinomorphic	individual parts of whorl are alike; type of radial symmetry
	androecium	the male reproductive parts of a flower
	bilabiate	with two lip–like lobes
	gynoecium	the female reproductive parts of a flower
	imperfect	unisexual, a flower with only male (staminate) or female (pistillate) parts
	inferior	the perianth arises above the ovary (epigynous flower)
	perfect	bisexual, a flower with male and female parts
	perianth	the non-reproductive portion of a flower that contains calyx and corolla
	superior	the perianth arises from below the ovary (hypogynous flower)
	zygomorphic	irregular flower; parts of one whorl not alike; may be bilaterally symmetrical
Flower - androecium	anther	pollen producing part of the flower
	anthesis	when flower parts are open and receptive to pollination
	filament	stalk that supports the anther
	pollen	male spores
	stamen	anther plus filament
Flower - gynoecium	carpel	part of pistil from one sporophyll; usually the highest number of the stigma lobes, styles, and locules
	locule	cell or compartment of ovary filled with ovules
	ovary	contains the ovules and forms a fruit
	ovule	structure that develops into the seed
	pistil	seed producing organ; ovary plus style (if present) plus stigma
	seed	mature ovule with embryo, coat, food supply, e.g., endosperm; “seed” also a unit of dispersal, e.g., bur
	stigma	part of the pistil that receives the pollen
	style	stalk–like part of the pistil connecting the ovary and the stigma
Flower - perianth	calyx	outer series of the floral envelope
	complete	flower has sepals, petals, stamens, and pistils
	corolla	inner series of the floral envelope
	petals	one of the individual parts of the corolla
	sepals	one of the individual parts of the calyx
	sympetalous	petals united at least at the base (opposite of gamopetalous)
	tepals	part of the perianth that is not distinguished as petals or sepals, e.g., in Liliaceae

Inflorescence	cyme	branched inflorescence in which terminal flower blooms first which makes it determinate
	panicle	branched inflorescence with flowers maturing from the bottom which makes it indeterminate
	pedicel	the stalk to an individual flower in an inflorescence
	peduncle	the stalk to an inflorescence or a solitary flower
	raceme	inflorescence with a single unbranched axis with flowers on pedicels, maturing from the bottom
	spike	inflorescence with a single unbranched axis with flowers sessile, maturing from the bottom
	spikelet	basic inflorescence unit of Poaceae; has two glumes and one or more florets
Fruit	achene	dry, one-seeded indehiscent fruit with seed attached to ovary wall at one point (e.g., sunflower)
	berry	fleshy fruit from a single pistil with often many seeds (e.g., tomato)
	caryopsis	dry, one-seeded indehiscent fruit with seed coat fused to pericarp (e.g., wheat)
	dehiscence	opening by definite pores or slits to discharge the contents
	drupe	fleshy, indehiscent fruit with a stony endocarp and usually one seed (e.g., peach)
	legume	fruit dry, dehiscent, with usually several to many seeds in a single cell and one line of dehiscence
	samara	fruit dry at maturity, indehiscent, winged
Specialized terms for some families	banner	upper petal of Faboideae in the family Fabaceae
	column	united filaments in Malvaceae or coalesced style and filaments in Orchidaceae
	costapalmate	leaf in some palmate leaved palms in which there is a petiole extension into the lamina causing a twist in the way the frond hangs
	crown shaft	fused column of leaf sheaths that wrap around the stem and create a green column at the tops of some Arecaceae
	cyathium	inflorescence in Euphorbia with unisexual flowers in a cup–shaped involucre
	disc flower	regular tubular flowers of Asteraceae
	floret	small flower in a cluster; in Poaceae a specialized structure in the spikelet (see above) of bracts containing the flower; in Asteraceae, in a head
	hastula	flange or wedged projection from the petiole slightly above the leaf midrib, on most palmate and costapalmate Arecaceae
	head	dense cluster of sessile or subsessile flowers
	ligule	interpetiolar stipule, fused crown of stipules that wrap around the node of some Rubiaceae
	keel	fused lower petals of Faboideae in the family Fabaceae
	ligule	a strap-like organ, e.g., in Poaceae, an extension arising from the leaf sheath
	ocrea	tubular fused stipules that wrap around the bud, and fall off leaving a scar around the stem, e.g., *Ficus* (Moraceae) and Polygonaceae; Arecaceae have something similar
	pappus	modified calyx of Asteraceae, awns, scales, or bristles for dispersal by wind or in the fur of animals
	phyllary	bract in the involucre of Asteraceae
	ray flower	floret of Asteraceae with a strap–like ligule
	receptacle	flattened disc in Asteraceae on which flowers are born
	spadix	spike with small flowers crowded on a thickened axis, e.g., Araceae
	spathe	large bract sheathing of enclosing an inflorescence, e.g., Araceae