

branches, a pattern which results in a semi-open canopy that exposes the beautiful gray items.

- *Ficus benjamina* 'Spearmint'—This cultivar presently being grown from tissue culture is very similar to 'Jacqueline'. Young 'Spearmint' plants produced leaves which were more elongate than older plants of 'Jacqueline'. As 'Spearmint' plants approached a height of 24 inches, they appeared to be the same as 'Jacqueline'.
- *Ficus benjamina* 'Wintergreen'—'Wintergreen' is now available to nurserymen as tissue cultured plugs. Its dark green new growth and excellent vigor make it attractive to the nurserymen.
- *Ficus maclellandii* 'Alli'—'Alli' has been extremely popular with the interior landscapers because of its unique foliage, and attractive branching. The good vigor, uniform branching pattern and self-supporting trunk make this cultivar relatively easy to grow.
- *Ficus nitida* 'Green Gem'—'Green Gem', with its resistance to Cuban laurel thrip, good vigor and uniform branch spacing make it relatively easy to grow.

One should remember that 'Green Gem' is patented (plant patent 5900).

The 8 *Ficus* covered in this summary are new cultivars for the United States foliage industry within the past 10 years. These cultivars represent a significant improvement of plant production characteristics and more diversity in pictorial features available to consumers and interior planting designers.

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VINES FOR SOUTH FLORIDA GARDENS

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Abstract. Vines are plants which climb on other plants or other structures in order to reach the light. Some are scandent, growing long branches through the support, others climb more actively with twining stems or tendrils, or may actually root onto the support. The method of climbing determines the support that is needed in the garden and the uses to which they may be put. A list of 30 interesting species is given, with information on their culture.

The biology of vines is very interesting. They are plants that have evolved methods of reaching for sunlight without developing the massive trunks that trees use to lift their leafy crowns above the competition. Some of the plants that are considered here as vines form long arching branches that make big mounded shrubs if the plants do not encounter any support. Others do not have even this much strength and spread as a ground cover unless they find something on which to climb.

Not all vines fit into the garden, and some are a positive menace—mention kudzu to a farmer in the South, or bindweed to a gardener in Europe and see how suspicious they are of plants that grow up onto other plants or structures! However, those which are worth growing can give a tremendous show of color from flowers, fruits or leaves, and may be fragrant, or give the added bonus of being

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attractive to butterflies or to birds which add movement and interest to the garden. A large garden could have color from vines all through the year, and gardens with more limited space can still find vines to fit almost any combination of color and season of display.

One of the most valuable uses of vines is in providing high shade or color in spaces too small to support a tree. The pot or root run for a vine can be relatively small, and the stems of many can be trained unobtrusively up a stake or a wire to expand into a full canopy at whatever height additional support is provided. They may be trained in a decorative pattern on a wall, or used to obscure an ugly relic too large to remove. Some types also serve well on sphagnum-filled forms to give a fast "topiary" effect. The natural tendency of some vines to spread over the ground where no support is available may be used to advantage in some situations. This type of ground cover may be particularly useful where plants are trained from a planting site that is satisfactory for growth, to cover an area in which they would be unable to root and grow well. All of the types of vines are also used in hanging baskets of various sizes, and as plants to cascade from roof or balcony planters.

The way in which vines reach the light above other plants is a key factor in knowing how best to use them in the garden. In the list that follows (Table 1) those that grow as mounding shrubs but put out long arching growths are marked "S" (scandent). Many of these have opposite leaves and branches which catch in the forks of other plants as the long branches move in the wind. Opposite leaves are much more effective as grappling hooks than alternate leaves which allow the branch to slide back out of a fork which it has entered, but other species go further and develop recurved branches or even hooks. The rattan palms have alternate leaves (as do all

Table 1. List of vines for south Florida gardens.

Scientific name	Common name	Habit	Tolerance			Display/comments
			Cold	Drought	Salt	
<i>Allamanda cathartica</i>	Allamanda	S	C	M	M	Large yellow flowers all year
<i>Antigonon leptopus</i>	Coral vine	T	S-C	H	H	Pink flowers in warm season
<i>Aristolochia grandiflora</i>	Pelican flower	T	S-C	M	L	Odd, huge flowers Summer and Fall
<i>Asparagus falcatus</i>	Sickle vine	S	S	H	H	Small, fragrant white flowers. Summer
<i>Bauhinia galpinii</i>	Red Bauhinia	S(T)	S-C	H	M	Masses of brick red flowers. Summer
<i>Bougainvillea</i> sp.	Bougainvillea	S	S-c	H	M-H	Rampant. White, pink Orange, red. Colored bracts give a long show
<i>Clerodendron thompsoniae</i>	Bleeding heart	T	S-c	M	M	Scarlet "hearts" in a white pouch. Summer-fall
<i>Cydista aequinoctialis</i>	Garlic vine	T	S	M	M	Crushed leaves smell of garlic. Purple flowers. Summer
<i>Epipremnum aureum</i>	Pothos	A	S	L	L	Yellow variegated leaves can reach 3 ft long
<i>Ficus pumila</i>	Creeping fig	A	C-N	M-H	H	Can be sheared for a close cover to walls
<i>Gelsemium sempervirens</i>	Carolina Jessamine	T	N	H	H	Yellow flowers Late winter
<i>Gloriosa superba</i>	Gloriosa lily	T	C-N	L	L	Reflexed red and yellow flowers. Dies back to ground in winter
<i>Hedera helix</i>	English ivy	A	S-N	H	M	Very tough
<i>Hylocereus undatus</i>	Night-blooming cereus	A	S-C	H	H	Flowers open at night
<i>Ipomoea</i> spp.	Morning-Glories	T	S-N	M	M	Some species annual
<i>Lonicera</i> spp.	Honeysuckle	T	S-N	M	M	The southern species are not fragrant
<i>Mandevilla splendens</i>		T	S-C	M	L	Rich pink flowers. Summer-Fall
<i>Monstera deliciosa</i>	Swiss cheese plant	A	S	L	L	Fruit is a tropical treat
<i>Pachyrhizus erosus</i>	Jicama	T	S-C	M	M	Easy from seed. Blue flowers like wisteria in Fall. Tuber edible
<i>Passiflora</i> spp.	Passion flower	T	S-N (some)	L	M	Unusual flowers of red, blue, purple. Some have edible fruit
<i>Petraea volubilis</i>	Sandpaper vine	T	S	H	H	Blue flowers in spring
<i>Philodendron</i> spp.		A	S	L	L	Great variety of leaf shapes and colors
<i>Podranea ricasoliana</i>	Pink Trumpet vine	T	S-C	M	M	Pink flowers. Summer
<i>Quisqualis indica</i>	Rangoon creeper	T(S)	S	M	M	<i>Pandorea</i> is similar
<i>Senecio confusus</i>	Mexican flame vine	T	S	M	M	White flowers age to red in a day. Rampant Orange flowers. Summer
<i>Solandra</i> spp.	Chalice vine	T(A)	S	M	H	Fragrant. pale yellow flowers. Summer-Fall
<i>Stigmaphyllon ciliatum</i>	Amazon vine	T	S	H	H	Yellow flowers. Red winged fruit
<i>Tetrastigma voignerianum</i>		T	S	M	L	Huge beautiful "grape" leaves
<i>Thunbergia grandiflora</i>	Clock vine	T	S-C	M	M	Long hanging racemes of blue flowers
<i>Trachelospermum jasminoides</i>	Confederate jessamine	T	S-C	M	M	Fragrant white flowers Spring-Summer

monocots), but have extended the midrib of each leaf into a long backward-pointed wishbone that is very effective in supporting the palm as it extends higher and higher through the canopy of forested areas.

This type of vine is very effective when allowed to run up into a tree, as would be the case in its natural habitat. Some of these scandent vines add to their grip on the support by twining stems or other plant parts, but they rarely

strangle their host. The most serious effect is in competing with the host tree for light, but if the host is in good health this will rarely be a problem. There is also the "last resort" of pruning the vine back, but this is difficult or dangerous, and in fact may stimulate regrowth of the vine which might have slowed its growth when there was no more tree to invade. Scandent vines also do well draped over a fence or other structure, but may need to be tied in place until they are well established.

Vines that climb more actively ("T" in the list) may do so by means of twining stems that encircle the support, or with tendrils that grasp any object of a suitable size and texture. These tendrils may be extensions of a leaf midrib, modified leaflets, stem structures or even the tips of inflorescences, but in all cases they are sensitive to touch or to shading or both, and respond to the presence of a possible support by attempting to encircle it. If it proves to be suitable as a support there will be rapid growth around it, and the plant will have established another firm hold on its climb to the light.

This type of vine is best used on a structure designed for the purpose of supporting it. They are also great on wire fences. If they get into a living shrub or tree, the embrace of the twining stem or tendrils may be so strong as to strangle parts of the host.

The other method of climbing is by means of roots that form along the stem, or sucker pads that develop on tendril-like structures. These roots or suckers actually attach themselves to the surface on which they are climbing. The roots may perform some of the typical root functions of taking in water and nutrients from liquid that flows down the surface.

These vines that attach themselves ("A" in the list) do well on tree bark, provided it is not a type that flakes off, and also succeed on weathered wood and masonry. Other surfaces such as metal siding or poles that *heat rapidly* are less hospitable. There is very little penetration of the surface by the roots unless there are surface flaws, but the vines are objectionable in some situations in which there will be a need to paint the surface to which they are attached. Where they *can* be used, they provide good protection from heat build up from sunlight, and in some cases can be kept clipped close to the wall to maintain the architectural design of the building while still softening its surface.

Each of the vines listed will thrive under average care, responding to moderate fertilization and watering with a good display of color. Tolerance of heat, sunlight, and salt varies with the species. Tolerance of drought also varies, but in general vines have evolved a resistance to water loss in their above-ground parts because the upper parts of tree and shrub canopies which it is their goal to reach are exposed to sun and wind. Well rooted vines are often a valid choice for the gardener who is conscious of the need to be sparing in the use of water.

There are at least a hundred good vines for south Florida. The thirty that follow all have interesting features and are easy to grow.

In the hardiness column, "C" and "N" mean that the plant is reliably hardy in central and northern Florida respectively. Those marked "S" may survive in a sheltered location.

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CHALLENGES FACING THE SOD PRODUCTION INDUSTRY

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Abstract. Seven key issues affecting the Florida sod production industry were ranked in order of importance, based on grower responses from the 1987 sod survey. Production efficiency and marketing were considered most important to sod growers whereas increased government regulation and the impact of soil subsidence were of relatively little concern. Reasons for this ranking are many and complex but, in broad terms, it is evident that: 1) production and marketing issues affect the welfare of all growers today; 2) soil subsidence is not a problem for all growers and it affects producers on organic

soils more severely than those located on mineral soils; 3) for most growers, government regulation and soil subsidence are problems that will affect their welfare at some future date and, consequently, are given present discounted values.

In spite of its growing importance as a major activity in the Florida economy, little information has been available on the sod industry. In 1987 an extensive survey was conducted to ameliorate this situation, focusing on sod production, agronomic and cultural practices, marketing, and perceptions of industry problems (1). Prior to this, information was limited to an extensive 1968 study by Smith and Brewster (2) and a lesser coverage in the 1974 Florida Turfgrass Industry Survey (3).

In addition to important agronomic information, studies like the 1987 Florida Sod Survey furnish benchmark data for assessing changes in an industry's structure and its current value to local or national economies. The data also provide insights for program development by University of Florida faculty who work in turf. Finally, the study has shed light on potential threats and opportunities facing individual growers and their industry. Adequate knowledge of these factors is essential for effective decision making at both the firm and industry levels.

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