

**WOMAN'S TONGUE, OR CHA-CHA
(ALBIZIA LEBBECK BENTH.), A FAST-GROWING WEED TREE
IN FLORIDA, IS PRIZED FOR TIMBER, FUEL,
AND FORAGE ELSEWHERE**

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Origin and Distribution

Additional index words. Leguminosae, siris, East Indian walnut, koko.

Abstract. *Albizia lebeck* Benth. (family, Leguminosae) occurs naturally from Kwangtung, China, through former Indochina and Burma to the Andaman Islands and as far west as Nepal. It has been introduced into most subtropical and tropical countries and, in 1899, seeds were sent from Egypt to the USDA by Dr. David Fairchild. In southern Florida, the tree grows vigorously and volunteers freely. It is no longer planted but often unwisely left standing on building sites. It is unsightly all winter and spring, litters the neighborhood with seed pods; seedlings spring up along highways, in hedges, planters and abandoned farmland, and the pollen and strong odor of the profuse flowers are objectionable in summer. The tree has been extensively utilized in the Old World for timber, fuel, coffee-shade and forage, and various parts serve as folk remedies. Today, because of its fast growth, tolerance of limestone, drought and salt, and its nitrogen-fixing ability, it is being advocated for cultivation in developing areas with hardship conditions.

Much attention is currently given multipurpose trees of the family Leguminosae, especially those that are fast-growing and drought-resistant. With some of these, the advantages should be carefully weighed against the disadvantages. This applies certainly to *Albizia lebeck* Benth. (*Mimosa lebeck* Linn., *M. speciosa* Jacq., *Acacia lebeck* Willd.), which is being recommended for developing areas with hardship conditions. Through past distribution it has earned an assortment of colloquial names in addition to the almost universally applied "woman's tongue": black siris, East Indian walnut, frywood tree, garso, Indian walnut, kalsish, kokko, koko, lebek, mara, parrot tree, siris, sirissa, sirsa, sizzling tree, tantia, vakai, woman's tongue acacia (India and Malaya); dikassa kassa, musasi, mashwe (Africa); ho-huan (China); langil (Philippines); vaivai (Fiji); acacia, acacia amarilla, algarroba de olor, amor platónico, aroma francesa, barba de caballero, barba di jonkuman, Barbados ebony, bavardage, bayeto antioqueño, black ebony, bois noir, cabellos de angel; canjuro, carbonero, carbonero de sombrero, cha-cha, caracao de negro, dormilon, ebene d'Orient, flor-estina, faurestina, guamucho, guango, Indies ebony, lengua de mujer, lengua viperina, mucho, mucho blanco, músico, pisquin, saman, saman margariteño, shack-shack, shak-shak, singer tree, tcha-tcha, tia-tia, thibet or tibet tree, vieille fille, whistling bean, white monkeypod [the monkeypod or rain tree, *Samanea saman* Merr., having pink flowers] (tropical America, Caribbean, Bahamas and Bermuda) plus appellations in various local dialects in both hemispheres.

Of all the names inspired by the clatter of the persistent dry pods, (which has been likened to the sizzling of frying meat (47), or the rattle of castanets), cha-cha might well be widely adopted as brief, pronounceable in any language, pleasantly expressive, and inoffensive to females.

The tree occurs naturally from Kwangtung, China, through former Indochina and Burma to the Andaman and Cocos Islands and as far west as Nepal (2, 37, 47). It is common throughout India and scattered in mixed deciduous forests up to 4,000 ft in the Himalayas (63). In Ceylon it is uncommon and mostly cultivated in the dry zone below 1,000 ft (22, 76). According to Streets (63), it was introduced into Mauritius about 1740 and became naturalized in the lowlands. Various writers have reported the tree as native to North Africa and northern Australia as well as tropical Asia (9, 24, 43, 75). This may not be correct. *Albizia lebeck* was carried to Egypt from the East Indies prior to 1807 and "hundreds of thousands planted along roadways" (44). The first plantings in Zanzibar (63) and Nyasaland were about 1912 (74) and the tree was later advocated as a shade tree in Gabon (69), Ghana and the Sudan, and planted for fuel, fodder and afforestation in Nigeria but not very successfully. It was a fairly common ornamental in Southern Rhodesia, Tanganyika and Uganda by 1962 (63).

F. M. Bailey (6) stated in 1900 that the tree had been introduced into the Brisbane area of Australia, was planted around settlements but not naturalized. In former Indochina it was planted as a shade for coffee (24); in Java and the Philippines as a roadside tree (5). According to the *Flora of Southeastern Polynesia*, it was introduced into the Marquesas in the early 1930's and is there valued as a shade tree (14). Degener (26) believes it reached Hawaii early in the 19th Century. It is naturalized throughout the islands. Hawaiians cultivate it for shade and as an ornamental up to 5,000 ft elevation (43).

To celebrate the opening of the Suez Canal in 1869, *Albizia lebeck* trees were planted on both sides of a 5-mile avenue from the principal bridge across the Nile to the Great Pyramids. Dr. David Fairchild, renowned plant explorer, admired these trees when they were well leafed-out in 1899 and sent seeds to the U. S. Department of Agriculture in Washington (27). This naturally led to its unfortunate adoption in southern Florida as a street tree. Gifford (30) suggests that it may have reached the Bahamas at an earlier date. Several specimens were planted on the south side of Puerto Rico and at Mayaguez and San Juan some years prior to 1903 (17). During Fairchild's visit to Egypt in 1926, he was dismayed to see that "the great avenue of trees had been cut down because they proved to be a host plant of an insect destructive to the cotton, the important money crop of Egypt" (27). Still, Chittenden (16) says: "There is a magnificent avenue of this tree on Bulak, an island of the Nile west of Cairo".

Albizia lebeck flourished in Florida and before 1933 was running wild, springing up in hammocks and cultivated land on the southern part of the peninsula and on the Keys (57). It likewise became spontaneous after cultivation in Bermuda, the Bahamas, Haiti and the Dominican Republic. In Cuba, it was much planted along highways and soon occurred as an escape, as also in dry parts of Jamaica, Puerto Rico, the Virgin Islands, Barbados, Trinidad, and the Netherlands Antilles (13). It is less frequently seen in Central and South America though it is occasionally cultivated in Belize, El Salvador and the Canal Zone, and from Colombia, Venezuela and Surinam to Peru, Brazil and

Paraguay (1, 3, 8, 11, 12, 19, 31, 35, 38, 39, 40, 42, 45, 46, 50, 59, 61, 63, 66, 73, 75, 76).

Description

Often represented as a small or medium-sized tree, *A. lebeck* in humid forests or plantations, may reach a height of 100 ft with a crown 90 ft across and massive, slightly buttressed trunk up to 10 ft in circumference (2). In the open in dry regions it averages 40 to 50 ft high with an equal spread. The root system is shallow, often superficial, and widespreading. The outer bark is pale gray and fairly smooth in early years, later becoming flecked and scaly and, with advancing age, checkered and fissured especially at the base. If a tree dies for any reason, the bark loosens and falls off in large, irregular plates. Inner bark is red. The leaves are deciduous, alternate, 6 to 16 inches long, composed of 2 to 4 pairs of pinnae 2 to 8 inches long, each with a conspicuous oblong, green gland at the base, and 4 to 12 pairs of leaflets, thin, oblong to obovate, sessile or short-stemmed, 3/4 to 1-3/4 inches long, rounded at both ends, one half narrower than the other and oblique at the base.

The heavily fragrant, yellowish-white, long-stamened flowers are massed in rounded, "powderpuff" heads 2 to 3 inches wide, borne singly or in groups of 2 to 4 at the tips of branchlets. Clusters of thin, flat, straplike seed pods soon appear in great abundance, at first glossy green and tender, later straw-colored or pale-buff, dry, leathery, 4 to 12 inches long, 1 to 2 inches wide, with bluntly pointed ends, stiff margins and bulged at the site of each of the 4 to 12 seeds. The pods remain on the tree for many weeks, rattling in the wind, ultimately falling, splitting partly open on one side and releasing the hard, tan, flat, oval seeds, depressed and darker in the center on both sides; up to 3/8 in or 1/2 inch long.

Possible Variety

L. H. Bailey (7) describes *A. occidentalis* Brandeg. as occurring in Mexico and Baja California and remarks: "Possibly only a variety of *A. Lebbek*, and not indigenous". Chittenden (16) records this tree as growing in California and Mexico and concludes: "Near *A. Lebbek*". Van Rensselaer (67) includes "*A. occidentalis* from western Mexico" in a list of "albizzias" offered by the Southern California Acclimatizing Association of Santa Barbara". Paul Standley (60), in *Trees and Shrubs of Mexico*, presents the tree as though native to Baja California, Sinaloa, and Tres Marias Islands. He says it "is very common in some localities". It is known variously as arellano, bolillo, cico, palo escopeta, palo fierro, and trucha. "The wood is used in carpentry." The type specimen was from San José del Cabo, Baja California, and was named by Brandege in 1892, 7 yr before Dr. Fairchild sent seeds of *A. lebeck* from Egypt to Washington. Herbarium specimens collected by H. S. Gentry in Baja California in 1939 are maintained at Harvard University. The tree seems to differ little from *A. lebeck* except in size.

Climatic Requirements

Albizia lebeck is best limited to tropical and subtropical zones. Generally, it is hardy only in the southern half of Florida. When well established, it survives 28° F. Dr. Henry Nehrling (44) lost "rather large specimens" at Gotha on February 5, 1917 when the temperature went down as low as 19° F. The State Forester (52) at Ft. Myers reported cold damage to nursery seedlings with some frozen to the ground in the winter of 1955-56, but recovery was rapid. The tree is

cut back by frost in Pakistan (63). It is not adapted to high rainfall areas of Malaya (18) but grows superbly in the high rainforests at 4,000 ft in the Andaman Islands and Burma. Natural regeneration occurs with an annual precipitation of 65 inches, distributed over a period of 6 months (63). This roughly approximates the average rainfall pattern of southern Florida. After the first year or two it is tolerant of long periods of drought.

Soil

A. lebeck seems not too particular as to soil, growing vigorously on oolitic limestone and in sand, marl or various other soil types from shallow to deep. However, it needs deep soil for maximum growth (49, 74). It is moderately salt-resistant and suitable for coastal planting some distance back from the sea (64).

Nitrogen Fixation

Burkill (15) states that "the roots carry bacterial nodules freely". Dr. John Gifford (30) wrote: "I have grown young lebbek trees in pots, and in the mat of fine roots close to the porous clay there are usually hundreds of white masses of nitrogen-fixing bacteria".

Propagation

Seeds remain viable for 4-5 yr (4). They sprout readily, especially if put into hot water and left to soak for 24 hr (66). But they must have adequate light. Shade may retard germination by as much as 2 yr (15). Stem cuttings are as easily rooted as those of a willow (30). Root shoots and small trees or large ones severely pruned can be transplanted with equal success (44). Stump plantings can be made on sites too dry for the survival of other planting material (52).

Culture

The tree, once watered at planting time, ordinarily needs no further irrigation and no fertilization. Dr. Henry Nehrling (44) lamented that seedlings which he had transplanted into "dry, poor soil at Naples [Florida] did not make any growth and finally pined away. In fairly moist soil, however, they began to start into vigorous growth at once." For mass afforestation of deserts, there must be regular irrigation (63). Spacings of 40-50 ft are suggested (49).

Weeding is necessary through the second year. Seedlings cannot live in heavy shade and are unable to compete with grass, certainly not with cogon grass, *Imperata cylindrica* Beauv. (15). In fact, I have observed that no seedlings appear on the grassy side of a row of trees bordering a parking lot, but they arise in masses in sunny locations on disturbed ground and in planters around the adjacent building. Volunteers in abandoned farmland which is ultimately overgrown with grass and weeds had their start when the ground was uncovered. All attempts to grow from seed, cuttings and seedlings in dry zone grassland in Fiji have failed (63). Elbert Schory (53), Florida's Tropical Forester, reported, however, that seedlings volunteered under turkey oak scrub in light shade where pine seedlings were difficult to establish.

Rate of Growth

The tree is commonly referred to in the literature as fast-growing but there are few actual examples of the rate of growth. Dr. Simpson told Nehrling (44), "I have a splendid specimen in my grounds about nine years planted, that has a head more than fifty feet across and forty in height, with a trunk diameter in excess of 2 feet". This would indicate a

height increase of about 4-1/2 ft per yr except that growth is much more rapid than that in the early stages and then slows down as the tree matures. In one summer season, from the falling and delayed splitting of the seed pods, seedlings attain heights of 6 to 8 ft or more. I have made a few experiments: One seedling in a hedge was cut to a height of 10 inches at the end of April; it grew 38 inches in the month of May. Cut again at a height of 44 inches, it grew 36 inches in June. It was left untrimmed June 30 and its height increased by 30 inches during the month of July. There was less rain in July and the seedling received no supplementary watering and no fertilizer. A volunteer in a planter had been repeatedly cut back to the base leaving a root system which was becoming steadily more substantial. On June 30, 1983, it was cut at the base and the stump severely chopped to discourage regrowth. Half the month of July was very dry. It seemed that regrowth had been discouraged. But a shoot appeared on August 3 and reached a height of 8 ft by September 28 (Fig. 1).

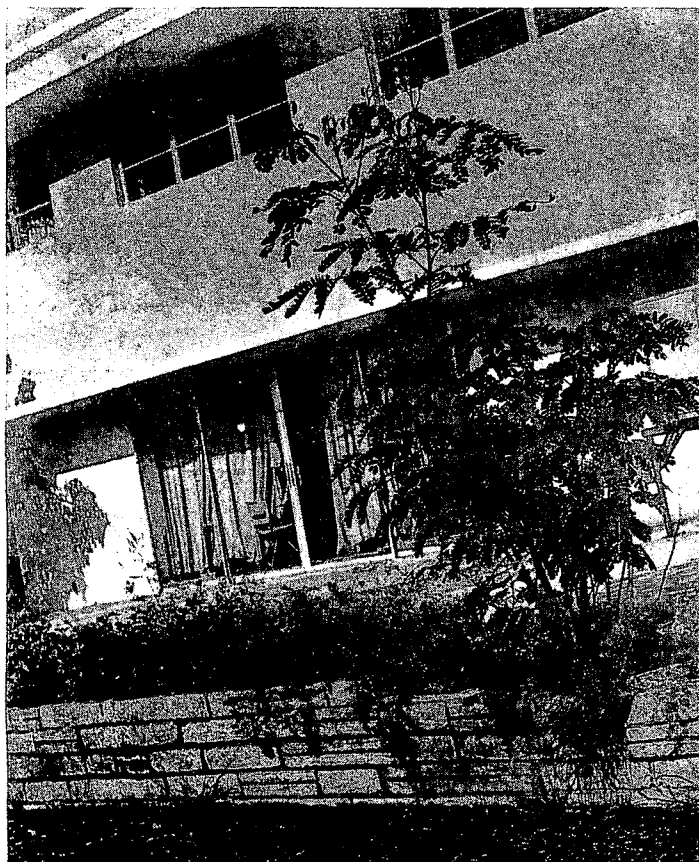


Fig. 1. Seeds released from windblown pods germinate in hedges, planters, or any crevice in masonry and the seedlings, growing more than 1-1/2 inches daily, develop tenacious root systems. (Photo by Julia Morton).

Enemies

In experimental forestry plots in Florida, rabbits have nipped off the seedlings; "some plantations were practically clear cut"; "all plots were severely damaged" (52). Planting for animal shelters in pastures was tried but abandoned because cattle eat the bark and kill the trees (53, 54). Gifford (30) in 1946 quoted Brown as stating in *Sylviculture in the Tropics* that "the fine avenues of lebbek in Cario were killed in 1910 by aphids". Gifford adds: "So far, in Florida, this tree seems safe from insect attack and disease." It has not remained so. It is subject to scales and mites (70), mushroom root-rot (*Clitocybe tabescens* (Scop. ex Fr.) Bres.),

Proc. Fla. State Hort. Soc. 96: 1983.

algal leaf spot or green scurf (*Cephaleuros virescens* Kunze); twig dieback caused by *Diplodia natalensis* P. Evans; dieback caused by *Fusarium oxysporum* f. *perniciosum* (Hept.) Toole; pod spot from *Phyllosticta divergens* Sacc.; rust, *Sphaerophragmium acaciae*; and galls and gumming caused by *Stilbella erythrocephala* (Ditm.) Lindau (48, 71). At this writing several trees scattered around the western side of the University of Miami campus have numerous dead branch tips and some large branches are totally dead. During this summer 6 trees in a row bordering a parking lot have died and have been felled; 2 others are nearly dead and the rest are showing the early signs of dieback (Fig. 2). The Bureau of Plant Inspection of the Division of Plant Industry, Florida State Department of Agriculture, is examining affected material to determine the cause. The bark of dying trees is loose and sloughing off. In India, root-rot causes affected trees to "crash down without warning" (20).



Fig. 2. A large specimen of *Albizia lebbek* rapidly declining. The first signs of distress—yellowing and shedding of leaves and dying back of twigs—appeared only a few weeks earlier. (Photo by Julia Morton).

Early Enthusiasm

Following Fairchild's enthusiastic introduction of this species and promotion of its cultivation in USDA Division of Botany Circular #23 in 1900, the tree won other admirers. Nehrling (44) spoke of it as "a most beautiful, a most impressive tree, one of the very best and easiest grown shade trees we possess . . . it deserves to be largely planted as a street and avenue tree". Simpson (56) called it a "fine tree" and declared, "The green and silvery flowers are followed by broad seed pods and both are ornamental". Gifford (30) extolled it as one of his "*Ten Trustworthy Tropical Trees*." He said, "Considering the ease of propagation, the rapidity of growth, and the character of its wood, it seems to be the ideal tree for which the paper manufacturer is hunting" . . . "A constant cover of pine trees subject to frequent burnings, according to the best authorities, exhausts the soil. It is therefore imperative that, wherever possible, we use these leguminous trees for soil betterment" . . . "The lebbek producing a frequent and profuse bloom of white pompon flowers, spreads a tropical perfume throughout the night". In his *Living by the Land*, he (29) wrote: "It is the

greatest grower and soil improver in south Florida". The Florida Forest Service welcomed it with open arms as "one of the best all around trees for planting in south Florida, as it grows rapidly in almost any type of soil" (53). Ten thousand seeds were planted in the State Nursery at Olustee in the spring of 1955 (51). Later, foresters faced the realities of cold sensitivity, preference for calcareous soil, and hazards from natural enemies (51, 54) and forestry plantings were discontinued.

Disadvantages

Noise. Gifford (30), in spite of his fervor, recognized some of the tree's faults: "When the trees are full of pods, as they are every year, perhaps oftener, the noise is bothersome." "Were it not for the rustling noise and litter, it would be far more popular as a shade tree".

Weedy behavior. Gifford (30) also wrote, "A single tree is soon surrounded by a dense thicket of hundreds of little trees. It sheds a rich litter over the surface of the land." "Whether we plant it or not, it is pushing ahead of its own accord, and in many places in the Redlands section the scaly-bark casuarina and the lebbek together are now very common." "The lebbek soon produces a jungle if left alone. It crowds out other things and is extremely aggressive. These qualities are liked by foresters more than by gardeners who have small yards to care for." "In the *Indian Forester*, G. M. Ryan says that root suckers of *Albizzia lebbek* have been found a distance of one hundred feet from the parent tree" (30).

It is extremely difficult to extract all the roots from our limestone when a tree is cut down, and any portion of root left in the ground will send up almost irrepressible suckers. Any injury to the surface roots gives rise to tough, strongly anchored, rapidly growing sprouts highly resistant to herbicides.

Wind susceptibility. Nixon Smiley (58), then Garden Editor of the *Miami Herald*, announced: "The albizzia, incidentally, is quite resistant to strong winds. Large albizzias survived the 1945 hurricane which hit South Dade County, while most other large trees were flattened or ripped to pieces". I agree that the spreading roots have a strong grip on our porous limestone and the tree may not be toppled but Watkins (70) says: "It attains size very rapidly, branches break in strong winds, the rattling pods are very annoying, and volunteer seedlings appear in great numbers. This tree is not recommended for home landscaping". Benthall (10) speaks of *A. lebbeck* as abundant in the wild and popular as an avenue tree in India but says: "The roots do not penetrate deeply into the soil, and for this reason the tree is not very suitable for planting on roadsides in Bengal owing to its liability to fall in high winds. It is said to be very injurious to other plants growing near it, and is therefore seldom seen in gardens". Cowen (20) agrees that the tree "is easily blown down by gales". In the Ryukyu Islands it is declared to be "of questionable value unless protected from typhoons because of its shallow root system" (68). In Madagascar it is uprooted by cyclones (49).

Winter-spring ugliness. In addition to the "weedy" spread and other negative features of this tree, it is highly undesirable from an esthetic point of view. It stands progressively leafless and dreary with shaggy pods from December to early May, gradually broadcasting profuse wind-blown litter.

Respiratory irritant. Soon after leafing out, it blooms heavily in June and July and sporadically through August and September and constitutes a health hazard. Pollen is airborne for at least 20 ft from the source even in our humid climate and Professor Lillian B. Fly (29) recorded that there

"have been reports of proved clinical cases of sensitization" to the pollen. Much more offensive to the respiratory system is the strong, sweetish but unpleasant odor given off by the flowers, almost overpowering if several trees are together. It may cause depression, headache and nausea (55). Prof. Ralph Holman (32, 33), Executive Director of the Hormel Institute, University of Minnesota, Austin, has separated the major components of the floral aroma by gas chromatography and has furnished the following report:

"The analysis of floral odor was made in the laboratory of R. T. Holman, The Hormel Institute, University of Minnesota. The floral odor of *A. lebbeck* was collected by entrapment into polyphenyl ether-impregnated glass fiber paper. After microdistillation, the gas chromatographic-mass spectrometric analysis of the floral odor revealed four main components. These were tentatively identified by comparison of mass spectra against a library of spectra of authentic compounds. The four substances are most likely 10% 3,7-dimethyl-1,6-octadiene-3 ol with a spectral fit of 986, 13% 3,7,11-trimethyl-1,3,6,10-dodecatetraene Z,E isomer (fit = 997), 33% 3,7,11-trimethyl-1,3,6,10-dodecatetraene α -isomer (fit = 996), and 44% 2,6-bis(1,1-dimethylethyl)-4-methyl phenol (fit = 992). Perfect match of spectra would give a fit of 1000, so the tentative structures are either correct or very similar to those of the natural substances. The first three are relatively common terpenes encountered in floral odors, but the fourth is phenolic and therefore probably the irritant principle."

Economic Uses

Landscaping. No lay or professional landscaper would dream of planting the woman's tongue in Florida today but the tree is plentiful and continually proliferating in vacant lots, old agricultural fields and along highways. Land-clearing has made some inroads but many trees have been deliberately left standing in new residential developments as substitutes for proper ornamentals and these are contributing to the steady dissemination of this obnoxious introduction.

Wood. *Albizzia lebbeck* is being recommended today for reforestation at low altitudes in underdeveloped countries, particularly in areas of low rainfall. Where there is an acute shortage of wood, introduction may be justified unless restoration of a locally indigenous timber tree may be more advisable. The heartwood is of too high quality to be ground up for pulp. Other species of this genus grow faster and are more suitable for that purpose.

For timber, the tree should be considered only where it is most prosperous in order to yield logs of sufficient size. In 1924, trial plantings in Nigeria were harvested and the yield found too low and the coppicing poor. Similar results were reported in Zanzibar where the tree was not satisfactory in "health or form". Efforts at commercialization were sustained in South Africa for 30 yr but finally dropped as an "economic failure" (63). Only in the East Indies has the industry flourished. In the 1920's and 1930's timber from the Andaman Islands, where the tree attains great dimensions, was in demand for export to Europe and North America (34). It is known in the trade as East Indian walnut, koko or kokko. The sapwood is thick, white or yellowish; the heartwood hard, heavy, coarse—but even-grained (Fig. 3) with a specific gravity of 0.55-0.60 (4); air-dry weight, 39-56 lb. ft³ (2, 30) at 12% moisture content (28). In weight and hardness it is only slightly inferior to teak, equal to teak in beam strength (26). It is highly valued for its almost iridescent coloring—brown with lighter streaks and



Fig. 3. Upper surface of the stump of an *Albizia lebbbeck* tree, 1 of 6 in a row that died in the summer of 1983. There is a sharp contrast between the thick, pale sapwood and dense, dark heartwood. Stains were caused by the saw; the wood does not appear diseased. (Photo by Julia Morton).

hints of gold and green; and for its lustrous sheen (34, 68). In China it is used to make the central doors of Confucian temples (15).

Paneling, elegant furniture and carvings made of the wood were prized and displayed in exhibitions in England. It is valued for flooring and veneer and it was the wood used for the handsome interiors of the famous Pullman railway cars in the United States (34). In India it is employed not only for interiors but for boat- and house-building, and formerly in the construction of agricultural and milling equipment, wheels, carts (30, 65), barrels, picture frames, and toys (23). In northern India it is believed to be unlucky for houses (25). Rock (48) says that the Government of Burma "fixed a higher tax upon the felling of this species than for teak or any other tree".

Fresh logs are subject to attack by fungi and powder-post beetles but sawn lumber keeps well under cover (2). The sapwood is immune to dry rot but not to borers and termites (21). Kiln-drying is preferred over air-seasoning (36). The wood is variable in quality and not easy to work by hand because of the interlocked grain, and large pores must be filled in before polishing (2, 10, 36). It is too heavy, hard and brittle for rifle stocks (34). The sawdust is irritant (15, 34). Sneezing and other respiratory symptoms in woodworkers handling this and related species have been reported by several investigators (41).

Fuel. Where the tree does not become large enough or sufficiently well formed to be profitable for timber, it is grown for fuel (21, 36). In Puerto Rico it is used only for fuel and posts (39). Young trees are all sapwood (30) but the calorific value of thoroughly dried heartwood is 2,364 kcal/lb. (4).

Fodder. The leaves and twigs are relished by camels (10), cattle and goats. Goats eat the fallen flowers and pods as well (36). In India, the branch tips are lopped for livestock (2). The tree has been planted for fodder in Cuba (63) and in the dry, Santa Cruz area of Bolivia and the Chaco in

northern Paraguay. There are periods when the trees are the only source of forage (Eric Wright, Tropical Agricultural Consultant, personal communication, June 30, 1983).

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Proc. Fla. State Hort. Soc. 96: 178-180. 1983.

WILD FLOWERS—AN AESTHETIC WAY OF CONSERVING WATER AND FUEL IN FLORIDA

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Abstract. Wildflowers have been used in parks, roadsides and golf courses to reduce maintenance costs while increasing the beauty. While many of the wildflowers sold by seed companies will grow in Florida, most are not native. A study was begun to identify native wildflowers that might be grown commercially as a seed source for people interested in natural landscapes.

There has been much interest among golf course architects, golf course superintendents, landscape architects and garden club members to use wildflowers in landscapes. The main reason for this is increasing costs for fuel, pesticides, labor, mowing equipment and the recent tightening of water restrictions due to limited water supplies. Wildflowers offer an option to create beauty while reducing costs. Several attempts at seeding wildflowers by local people have resulted in failure. Several wildflower seeding projects were begun to determine the reasons for these failures.

Twenty years ago, if you wanted wildflowers, you had to dig them from the wild. Ten years later there were a few seed companies producing a limited supply. Now there are