P6915

PLANT IMMIGRANTS.

No. 161. SEPTEMBER, 1919.

GENERA REPRESENTED IN THIS NUMBER.

	Page		Page
Acer	1479	Exocarpus	1482
Amerimnon	1479	Grewia	1483
Anacardium	1479	Lagerstroemia	1483
Arachis	1479	Metrosideros	1483
Arundinella	1480	Pavetta	1484
Barosma	1480, 1481	Phyllostachys	1485
Brassica	1481	Pieris	1484
Bucklandia	1481	Prunus	1484
Citrus	1482	Randia	1484
Dodonaea	1487	Selinum	1485
Engelhardtia	1482	Timonius	1485

Plates:

245. American-grown bamboo shoots, *Phyllostachys mitis.*
246. An interesting hedge plant from New Zealand, *Dodonaea viscosa.*

Foreign Seed and Plant Introduction.

EXPLANATORY NOTE.

This multigraphed circular is made up of descriptive notes furnished mainly by agricultural explorers and foreign correspondents relative to the more important introduced plants which have recently arrived at the Office of Foreign Seed and Plant Introduction of the Bureau of Plant Industry of the Department of Agriculture, together with accounts of the behavior in America of previous introductions. Descriptions appearing here are revised and published later in the INVENTORY OF PLANTS IMPORTED.

Applications for material listed in these pages may be made at any time to this Office. As they are received they are placed on file, and when the material is ready for the use of experimenters it is sent to those on the list of applicants who can show that they are prepared to care for it as well as to others selected because of their special fitness to experiment with the particular plants imported. Do not wait for the annual catalogue entitled NEW PLANT INTRODUCTIONS which will be sent you in the autumn and in which will be listed all plants available at that time. Regular requests checked off on the check list sent out with the catalogue are not kept over from year to year. If you are especially interested in some particular plant in the catalogue write and explain in detail your fitness to handle it.

One of the main objects of the Office of Foreign Seed and Plant Introduction is to secure material for plant experimenters, and it will undertake as far as possible to fill any specific requests for foreign seeds or plants from plant breeders and others interested.

David Fairchild,
Agricultural Explorer in Charge

Office of Foreign Seed and Plant Introduction,
Bureau of Plant Industry,
U. S. Department of Agriculture.

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Acer campbellii (Aceraceae), 47629. **Maple.** From Darjeeling, India. A collection of seeds presented by Mr. G. H. Cave, director, Lloyd Botanic Garden. This is the principal maple of the northeastern Himalayas, where it grows at an altitude of 7,000 feet and more. The leaves are a beautiful green with red petioles. The grayish white, close-grained wood is moderately hard and is extensively used for planking and for tea boxes. The tree reproduces freely by seed or by coppice, and plays an important part in the regeneration of the hill forests. (Adapted from Watt, Dictionary of the Economic Products of India, vol. 1, p. 69.)

Amerimnon sissoo (Fabaceae), 47637. From Darjeeling, India. A collection of seeds presented by Mr. G. H. Cave, director, Lloyd Botanic Garden. "The timber is very valuable, and is one of the numerous kinds which are known in the timber trade as rosewood. The heartwood is brownish, and it posseses great strength and elasticity. It is also heavy, its weight being about 50 lbs. to the cubic foot. The wood is used for all kinds of joinery and cabinet work, carving, building material, gun carriages, etc. It requires a tropical or subtropical temperature." (Gardeners' Chronicle, Jan. 31, 1914, p. 82, under *Dalbergia sissoo*.)

Anacardium excelsum (Anacardiaceae), 47929. From New York, N. Y. Seeds presented by H. P. Finlay & Co. Ltd. "Seeds, called 'mijagua,' that come from Venezuela, where they are used as a substitute for Indian corn in the feeding of hogs. These seeds are much cheaper than Indian corn in Venezuela." (Finlay.)

A majestic tree, related to the cashew nut, found at altitudes ranging from sea level to 2,700 feet in torrid regions. The wood is hard and heavy and worked with difficulty, but it is used in making boats and canoes. Fish are very fond of the fruit and it is stated that in ancient times the Indians in Talamanca used the cut-up bark of this tree to stupefy the fish and thereby to catch them more easily. (Adapted from Pittier, Plantas Usuales de Costa Rica, p. 92.)

For previous introduction and description see Plant Immigrant Bulletin No. 111-2, p. 904, S. P. I. No. 40987.

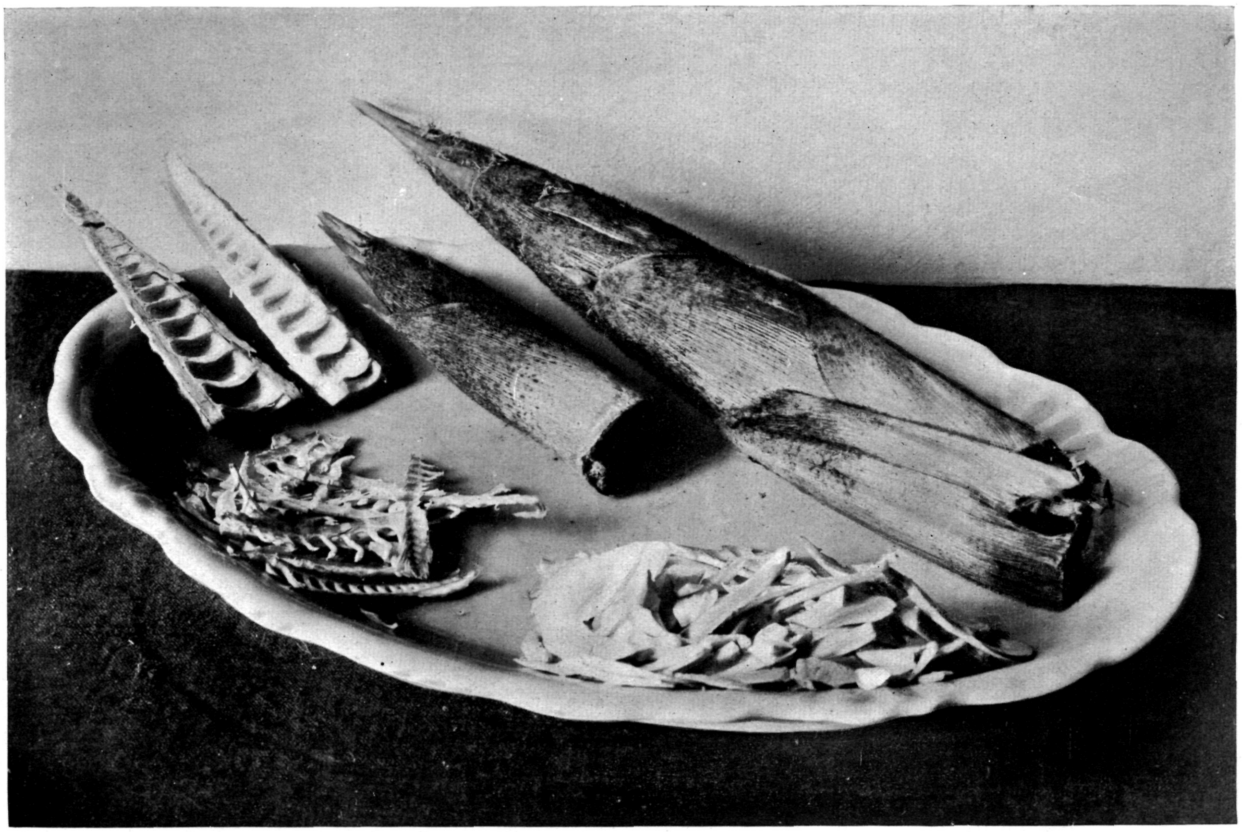
Arachis hypogaea (Fabaceae), 47865. **Peanut.** From Rio de Janeiro, Brazil. Seeds presented by Capt.

Amilcar A. B. Magalhães, Commissão de Linhas Telegraphicas Estrategicas de Matto Grosso ao Amazonas. Peanuts grown by Mr. R. G. Reidy on his property, 'Cascatinha,' 500 meters above sea level, at the station called Martins Costa, on the Central Railway of Brazil, state of Rio de Janeiro. The original seed, - from the wilds of Matto Grosso, where it was grown by the Indians, - was given to Mr. Reidy by the Commissão in 1918 and is understood to have been selected for its very large size. The specimens sent are reduced in size but are still much larger than the common peanut of Matto Grosso. Mr. Reidy stated that the development of the crop was retarded by damage resulting from floods. The product shows a marked modification in coloration. (Adapted from letter of Capt. Magalhães.)

For previous introduction and description see Plant Immigrant Bulletin No. 123, p. 1025, S. P. I. No. 43035.

Arundinella hispida (Poaceae), 47641. **Grass.** From Darjeeling, India. A collection of seeds presented by Mr. G. H. Cave, director, Lloyd Botanic Garden. A perennial grass, with a stout, hard, creeping rootstock, and with a simple or branched stem from 1 to 5 feet in length. The leaves are narrow or broad and from 6 to 12 inches long, and the panicles are 4 to 18 inches in length. This is an abundant grass throughout the hilly parts of India, and is distributed through the East Indies, South Africa, Australia, and tropical America. In São Paulo, Brazil, it is considered a good forage plant for dry lands. (Adapted from Correa, Flora do Brazil, p. 128; and Hooker, Flora of British India, vol. 7, pp. 73, 74.)

Barosma betulina (Rutaceae), 47953. From Burttholm, Vereeniging, Transvaal, South Africa. Seeds presented by Mr. J. Burtt-Davy. The "honey-buchu," a branching, evergreen shrub, - the best variety of buchu, - is found on South African mountain slopes in red, sandy loam, at altitudes between 1,000 and 2,000 feet. It is bushy and compact and reaches a height of 3 to 4 feet, though it may grow taller. On account of the starlike, purple flowers this plant compares favorably as an ornamental with the gardenia and camellia. The small, light green leaves are smooth and leathery and are covered on each surface with oil glands. A greenish yellow oil is extracted from the leaves, with alcohol or with boiling water. When exposed to the cold the



AMERICAN-GROWN BAMBOO SHOOTS. (PHYLLOSTACHYS MITIS, S. P. I. NO. 24759.)

"One of the highest priced vegetables in Japan and China is the young shoot of the bamboo just as it appears above ground. The shoot is clothed with many overlapping papery husks, like those of an ear of corn, and the tender inside portion is chambered. This latter is prepared for the table by cutting into thin slices and boiling, and when served with butter it forms a remarkably crisp, delicate vegetable. The shoots shown are from the cooperative plantation of Mr. E. A. McIlhenny, at Avery Island, La., which was planted in 1910. This is the second season that Mr. McIlhenny has gathered shoots and sent them to this office. According to Kozai, as nearly 70 per cent of the total nitrogenous matter in the bamboo shoots is in amid form, the determination of their food value from the modern standards of vitamines deserves to be made."—Fairchild. (Photographed by E. C. Crandall, April 26, 1916; P18488FS.)

AN INTERESTING HEDGE PLANT FROM NEW ZEALAND. DODONAEA VISCOSA. (SEE S. P. I. NO. 36813.)

The New Zealand Dodonaea is proving to be one of the best hedge plants for tropical and subtropical regions. It is beautifully dense and green, responds to the shears perfectly, and when taken in hand early makes a compact wall clear to the ground. Seedling plants form a deep taproot and must be transplanted with care on that account. (Photographed by Mr. Bisset on the ground of the Citrus Experiment Station at Riverside, Calif., October 22, 1916; P20609FS.)

oil deposits a solid barosma camphor which, when purified, has the odor of peppermint. The leaves contain the most oil in January or February but it is better to clip the twigs in early March, after most of the seeds have fallen. In clipping, care is taken to leave a sufficient number of buds for the next year's growth. Leaves of one year's growth are far superior to those two years old. They are astringent and contain a bitter substance which acts beneficially on the stomach. The Hottentots and Bushmen used a solution of the leaves for bladder and kidney complaints, and the roots for snake bites. (Adapted from The Agricultural Journal of the Union of South Africa, April, 1893, July and December, 1913.)

Barosma crenulata (Rutaceae), 47954. From Burttholm, Vereeniging, Transvaal, South Africa. Seeds presented by Mr. J. Burtt-Davy. The large-leaved buchu, – the kind most esteemed in the colony, although not the highest priced in London, – is often distinguished as the "true buchu." It is a twiggy shrub, 3 to 4 feet high with smooth purplish branchlets, and leaves 1 to 1½ inches long. The pale purplish flowers, produced in October and November, are very plentiful and last for a long time. The uses are the same as those of *B. betulina.* (Adapted from The Agricultural Journal of the Union of South Africa, April, 1893.)

Brassica besseriana (Brassicaceae), 47928. **Mustard.** From Aden, Arabia. Presented by Mr. Addison E. Southard, American consul. "Two kinds of mustard are grown in the Yaffai Dthala districts of the Aden hinterland; and in the Arabian Red Sea districts of Dubham, Shargah, Koraisha, Hojaria, and other places. These two kinds are known in Arabic as *khardal* (or *ghardal*) and *tartar*. The first-named variety yields but little oil while the latter yields proportionately a good deal of oil. The clerk in this consulate has been sent to canvass the Arab families in Aden and Sheikh Othman with whom he has acquaintance, and has succeeded in obtaining from the medicine chest of one old gentleman a few grams of the *khardal* (or *ghardal*) variety which are herewith enclosed." (Southard.)

Bucklandia populnea (Hamamelidaceae), 47649. From Darjeeling, India. A collection of seeds presented by Mr. G. H. Cave, director, Lloyd Botanic Garden. A large

evergreen tree, up to 80 feet in height, native to the eastern Himalayas at altitudes of 3,000 to 8,000 feet. The wood is grayish brown, close grained, and durable, and is very much used in Darjeeling for planking and for doors and window frames. (Adapted from Watt, Dictionary of the Economic Products of India, vol. 1, p. 545.)

Citrus sinensis (Rutaceae), 47931. **Sweet orange.** From Auckland, New Zealand. Plants presented by Mr. H. R. Wright. "'Dunning's Seedless' (navel orange). Seedling, from the Washington navel, raised in Queensland, Australia, where it is said to surpass the Washington navel (new)." (Wright.)

For previous introduction and description see Plant Immigrant Bulletin No. 124, p. 1034, S. P. I. No. 43147, and Inventory No. 37, Pl. 5.

Citrus webberii (Rutaceae), 47919. From Zamboanga, P. I. Seeds presented by Mr. P. J. Wester, agricultural advisor. "*Mangapug.* The largest known, loose-skinned citrus fruit in the world. The fruit is citron-yellow, has 13 to 15 locules, very thin skin, and juicy flesh. The fruit is eaten by the natives in Cotabato. It is apparently a rare form for I saw no trees anywhere during my stay in Cotabato, where I went as far as Fort Pikit in the interior. Nowhere did I see any signs of canker though I was on the lookout for this disease." (Wester.)

Engelhardtia spicata (Juglandaceae), 47842. From Darjeeling, India. Seeds presented by Mr. G. H. Cave, director, Lloyd Botanic Garden. A large, handsome tree belonging to the walnut family, native to the foothills of the eastern Himalayas. The thick, brown bark contains much tannin; the wood shows a beautiful grain and is said not to warp. (Adapted from Watt, Dictionary of the Economic Products of India, vol. 3, p. 244.)

Exocarpus cupressiformis (Santalaceae), 47866. From Sydney, Australia. Seeds presented by Mr. J. H. Maiden, director, Botanic Gardens. "Native Cherry." A small tree, about 20 feet high, with very numerous, green, wiry branches sometimes collected in a dense, conical head, sometimes loose and pendulous at the ends. The leaves are reduced to tiny alternate scales. The flowers are small, in terminal spikes, and soon fall off, except one in each spike; after fertilization, this one is raised on an obconical pedicel which thickens to a

diameter of one-fourth of an inch and is red and succulent. The fleshy edible pedicel, under the small, dry, globular fruit, has been likened to a cherry with the stone outside. The close-grained, handsome wood is used for turning and cabinet purposes. (Adapted from Bentham, Flora Australiensis, vol. 6, p. 229, and Maiden, Useful Plants of Australia, pp. 30, 534.)

Grewia multiflora (Tiliaceae), 47689. From Darjeeling, India. Seeds presented by Mr. G. H. Cave, director, Lloyd Botanic Garden. A shrub or small tree of eastern and western India, ascending to 4,000 feet. The white wood gives out an exceedingly unpleasant odor when cut, and is extensively used in making cot frames, ax handles, oar shafts, etc. The plant is also much used for making hedges, for which its close growth and evergreen leaves make it especially suitable. (Adapted from Watt, Dictionary of the Economic Products of India, vol. 4, p. 179.)

Lagerstroemia parviflora (Lythraceae), 47703. From Darjeeling, India. Seeds presented by Mr. G. H. Cave, director, Lloyd Botanic Garden. A large, deciduous tree met with in the sub-Himalayan tract in Bengal, Assam, central and southern India. The gum which exudes from the bark is said to be sweet and edible, and the bark yields a fiber used in the making of ropes. The bark is also used in dyeing skins black, and for tanning. The grayish brown wood is very hard and tough, seasons well, and is fairly durable. It is largely employed for agricultural implements, boats, buggy shafts, etc. It is one of the trees on which the tasar silkworm is fed. (Adapted from Watt, Dictionary of the Economic Products of India, vol. 4, p. 584.)

Metrosideros tomentosa (Myrtaceae), 47930. From Auckland, New Zealand. Seeds presented by Mr. H. R. Wright. "*Pohutukawa*. One of the most beautiful of flowering trees, and very valuable as a bee plant; the honey made from these is of excellent flavor and is pure white. This tree, about 40 feet in height, is found on the hillsides, along the beach, and even grows out of the sides of the sea cliffs. In many cases, thriving trees grow above high water mark, where the roots are frequently washed by the tide. Like *M. robusta*, the hard wood is used for making knees for boat building. Strange to say, *M. tomentosa* is found in the wild state only near the sea, although it grows

well inland providing it is protected from frost." (Wright.)

For previous introduction and description see Plant Immigrant Bulletin No. 122, p. 1017, S. P. I. Nos. 42851, 42852.

Pavetta indica (Rubiaceae), 47749. **Pawatia.** From Darjeeling, India. Seeds presented by Mr. G. H. Cave, director, Lloyd Botanic Garden. A very variable bush or small tree, common throughout most of India, ascending to 4,000 feet in Gárhwal. The powdered root is used as a laxative in native medicine, and the fruit, a two-seeded berry, is picked and eaten in Madras. The white flowers, which occur in broad flat corymbs, are said to be used as food by the hill people of Màtheràn. (Adapted from Watt, Dictionary of the Economic Poducts of India, vol. 6, p. 114; and Brandis, Forest Flora of India, p. 275.)

For notes on the interesting bacterial nodules of the leaves, see *Pavetta zimmermanniana*, S. P. I. Nos. 42767 and 45554, Plant Immigrant Bulletin Nos. 121 and 141, pp. 1003, and 1267 respectively.

Pieris ovalifolia (Ericaceae), 47755. From Darjeeling, India. Seeds presented by Mr. G. H. Cave, director, Lloyd Botanic Garden. A shrub or small tree with ovate or somewhat oblong leathery leaves 3 to 6 inches long, and racemes of white or bluish, or sometimes flesh-colored flowers. Because of a poisonous principle the young leaves and buds are a useful insecticide. It is a native of the temperate parts of the Himalayas. (Adapted from Brandis, Forest Flora of India, p. 280; and Watt, Dictionary of the Economic Products of India, vol. 6, p. 22 9 .)

Prunus cerasifera myrobalana (Amygdalaceae), 47932. From Auckland, New Zealand. Plants presented by Mr. H. R. Wright. "'Coffee's Myrobalan.' This variety we use for the working of European plums and prunes (*Prunus domestica*). They grow well, and make a good union on it. It strikes almost as freely as a willow." (Wright.)

Randia uliginosa (Rubiaceae), 47769. From Darjeeling, India. Seeds presented by Mr. G. H. Cave, director, Lloyd Botanic Garden. A small, deciduous tree of eastern, central, and southern India, with shining leaves and large, showy, white or cream-colored flowers. The succulent fruit is used in dyeing as an intensifier, and also in medicine as an astringent. Boiled

or roasted, it is often eaten by the natives as a vegetable. The leaves are boiled and eaten as greens. When unripe, the fruit is used to poison fish. (Adapted from Watt, Dictionary of the Economic Products of India, vol. 6, p. 391; and Brandis, Forest Flora of India, p. 273.)

For previous introduction and description see Plant Immigrant Bulletin No. 104, p. 838, S. P. I. No. 39655.

Selinum tenuifolium (Apiaceae), 47790. From Darjeeling, India. Seeds presented by Mr. G. H. Cave, director, Lloyd Botanic Garden. A highly ornamental Himalayan plant with very finely divided fernlike leaves. When the plant is isolated on a lawn and not allowed to flower the effect is very striking because of the fresh green color of the leaves. It is perfectly hardy in England. (Adapted from The Garden, vol. 38, p. 221.)

Timonius rumphii (Rubiaceae), 47867. From Sydney, Australia. Seeds presented by Mr. J. H. Maiden, director, Botanic Gardens. A tall shrub or small tree, with small drupes which have much the appearance of the wild crab apple of Europe. The wood is light in color, close grained, and suitable for lining boards; it is easily worked and resembles somewhat the English sycamore. (Adapted from Maiden, Useful Native Plants of Australia, pp. 63, 607.)

Notes on Behavior of Previous Introductions.

Phyllostachys pubescens (Poaceae), S. P. I. No. 24759, shown as *P. mitis* in Plate No. 245 of this issue, is the great edible bamboo of China and Japan, and the largest of the hardy species. The culms attain a maximum height of 80 feet and a maximum diameter of 8 inches.

Bamboo groves in America are just beginning to produce shoots in sufficient quantity to make experimental cooking tests possible. Shoots were sent to this Office, May 5, 1919, from the Barbour Lathrop Bamboo Grove, near Savannah, Ga. The shoots were stripped of all tough coverings of husk, and the hard base removed, leaving only the tender parts; they were then cut into cross-sections one-eighth of an inch thick, boiled in salted water for 2½ hours, drained, and served with butter sauce. The deliciously rich but

delicate flavor, the tender crispness, and the pleasant aroma of the cooked shoots, make this one of the most appetizing and keenly relished of dishes.

It may be interesting to those growing oriental bamboo to know that in 1917 bamboo shoots were exported from the Island of Formosa to places other than the Empire of Japan to the amount of 563,397 kin (751,196 lbs.). These were exported principally to China. While edible bamboo shoots are used both fresh and canned, they are also dried. This office has not yet had opportunity, however, to experiment with the dried product. The following statement in regard to dried bamboo shoots was received May 24, 1919, from Mr. G. Takata, director, Department of Productive Industries, Government of Formosa.

Method of Preparing Dried Bamboo Shoots.

"In the months of June and July, bamboo shoots or 'Asa take,' as they are locally called, are collected as they grow up to the length of 3 or 4 feet; and the tough portion of their bases and the soft portion of their upper parts are removed. Then the bamboo shoots are peeled off, cut into slender shreds [thin slices?] measuring 3 inches long and 2 inches thick [wide?] and then they are boiled in iron pans and when they are adequately boiled, they are put into a large barrel with the boiled water removed. These shreds [slices] are placed under moderate weight for usually two weeks so that the water contained therein is completely forced out. Finally they are dried in the sun until they are ready for eating. At the time of boiling the bamboos or putting them into a barrel, no kind of medicine [preservative?] or seasoning is added. Sliced and cut bamboo shoots mean bamboos that are cut into finer threads [narrower slices?] measuring 2 or 3 inches long. Sliced bamboo shoots are in the same manner prepared of the upper part only of the bamboo shoots.

Method of Dressing Dried Bamboo Shoots.

"Dried bamboo shoots taste bitter and emit some smell and have, therefore, to be adequately seasoned after they have been thoroughly boiled in hot water. Usually dried bamboo shoots are throughly boiled with lard or prepared with vegetables, mushrooms, etc., in salted broth.

Method of Discriminating Fresh from Old Bamboos and Good from Bad Ones.

"Fresh bamboo shoots are much stronger in yellow color than old ones, and new ones impart stronger smell. Fresh ones, after they are boiled, obtain much stronger bitterness and astringency; old ones emit whitish powder and get considerably deprived of yellow color. Fresh ones are distinctly yellow, and soft and pleasant to the touch.

"Bamboo shoots of superior quality are obtainable only from those of the earliest season."

Dodonaea viscosa (Sapindaceae), S. P. I. No. 36813, illustrated by Plate No. 246 of this Bulletin, was introduced from New Zealand, by the Department of Agriculture, in February, 1905. There have been subsequent introductions, from the Sudan, the Philippines, and Australia. Fourteen hundred plants, under the above introduction number, were distributed in 1915, from the Yarrow Plant Introduction Field Station, near Rockville, Md., to experimenters living in Florida, California, Texas, New Mexico, Alabama, and Porto Rico. The following year reports were recieved on about 700 of these plants; only 245 of them were then living. Nearly all of the plants which were well established survived light frosts the first winter, and although the tips of the foliage were browned by a temperature of 28°F., the plants soon recovered. The plants did equally well on bottom land and upland. In spite of the large loss of plants the first year, this species gives promise of distinct value for hedge use in the southern parts of California and Florida.

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BUREAU OF PLANT INDUSTRY
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