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PLANT IMMIGRANTS

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Foreign Seed and Plant Introduction.

EXPLANATORY NOTE

This circular is made up principally of notes received from agricultural explorers, foreign collaborators, and correspondents, concerning the more important plants which have been received recently by the Office of Foreign Seed and Plant Introduction. It also contains reports on the behavior of plants which have been introduced in previous years.

Descriptions appearing here are revised and later published in the Inventory of Seeds and Plants Imported,--the permanent record of plant introductions made by this Office.

Plant Immigrants should be considered merely an ANNOUNCEMENT OF THE ARRIVAL OF PLANT MATERIAL. As a rule all material is propagated before being distributed; this may require several years.

The Annual Catalogue of New Plant Introductions describes briefly the plants available for distribution. Applications for seeds or plants listed in Plant Immigrants may be sent at any time, however, and will be filed in the order of their receipt. When material is ready for distribution, these requests will be given first attention; if their number is sufficient to exhaust the available supply of a given species, it will not be included in the Annual Catalogue.

Plant breeders and experimenters who desire plants not available in this country are invited to correspond with this Office which will endeavor to secure the required material through its agricultural explorers, foreign collaborators, or correspondents.

DAVID FAIRCHILD
Agricultural Explorer in Charge,
Office of Foreign Seed and Plant Introduction.

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Aleurites montana (Euphorbiaceae), 54703. **Mu-oil tree.** From Hongkong, China. Seeds presented by Mr. H. Green, superintendent, Botanical and Forestry Department. "This is the 'mu-yu-shu' (literally, 'wood-oil tree'), of southern China. It is less hardy than the tung-oil tree, *Aleurites fordii*, and two-year-old specimens, growing at Tallahassee, Fla., were killed by cold in February, 1917. The oil is practically identical with tung oil. The fruit and leaves are different in appearance from those of *A. fordii*." (R. A. Young.)

Ampelocissus imperialis (Vitaceae), 54727. From Buitenzorg, Java. Seeds presented by Dr. W. M. Docters van Leeuwen, director, Botanic Garden. "The small, spherical, 2-seeded berries are sour, but good for jelly; however, the yield is so small that the plant has no cultural interest as a fruiting vine." (G.C. Husmann.)

An ornamental vine from tropical and subtropical Asia, with thick, heart-shaped leaves resembling those of a begonia, and long-stalked clusters of deep-violet flowers.

Casuarina sumatrana (Casuarinaceae), 54705. From Singapore, Straits Settlements. Seeds presented by Mr. I. Henry Burkill, director, Botanic Gardens, through Dr. P.J.S. Cramer, chief, Plant Breeding Station, Buitenzorg. "The most beautiful of the Casuarinas and one of the most decorative of tropical trees. It has a thick pyramidal habit and is a beautiful shade of green." (Cramer.)

Citrus sinensis (Rutaceae), 54699. **Orange.** From Paramaribo, Dutch Guiana. Budwood presented by Mr. W. L. Kann, Pittsburgh, Pa. "Budwood of a very good orange from the Fernandez estate, La Liberté. According to Mr. Kann, one tree bore 700 fruits. The trees are now 7 to 8 years old and have borne for 4 or 5 years. The fruit ripens in July and August." (David Fairchild.)

Cucurbita ficifolia (Cucurbitaceae), 54700. **Chilacayote.** From San Jacinto, Distrito Federal, Mexico. Seeds presented by Sr. A. Brambila, Department of Agriculture. "The 'chilacayote,' often called 'chiberre' in Costa Rica, is cultivated in various parts of Mexico and Central America, where it is also native. The stems spread to a considerable distance (20 feet or more) from the main plant, the leaves are roundish kidney-shaped, and the flowers are pale yellow. The fruits

resemble in a general way small watermelons; the white flesh is edible only after cooking and is used for conserves and pies." (P. G. Russell.)

Danthonia setacea (Poaceae), 54736. **Grass.** From Hobart, Tasmania. Seeds collected by Mr. Victor O. Fletcher, Newnham, near Launceston, and presented by Mr. L. A. Evans, acting Director of Agriculture. "A good native grass." (Evans.)

A valuable perennial pasture grass frequently less than a foot high, common in many localities in Australia and New Zealand. The soft narrow leaves are mostly short and erect, and either smooth or somewhat pubescent with spreading hairs. In the spring the dense, narrow, branching panicles glisten with white-haired flowering glumes.

The species of *Danthonia* are probably the most important economic grasses of New South Wales. In New Zealand they are recommended only for the poorer soils of the South Island; but in the North Island they are considered very valuable pasture grasses, and are credited with carrying two sheep to the acre. In New South Wales the *Danthonia* grasses are commonest on the tablelands and slopes, where they constitute about 90 per cent of the dominant grasses in well-managed pasture, sometimes, indeed monopolizing the whole situation. In coastal districts they are common in newly cleared areas, in scrub lands, and very often in well-worked fallowed fields. In western districts they are just a little less abundant than on the slopes and tablelands. The *Danthonia* grasses can therefore be termed the commonest and most widely distributed grasses of New South Wales, and without them our pastoral industry would suffer considerably.

The *Danthonias* are tussocky in habit, but they stool considerably and will stand a great amount of grazing. Some of the species are rather hairy, particularly those of the western plains, but evidently this is no drawback as far as palatability is concerned. During the hot summer months the grass dies off considerably, but can be revived in a wonderful manner by rain.

The value of the *Danthonia* grasses in respect to palatability, both for cattle and for sheep, has been well proved by every stockman. The forms that grow abundantly in the coastal districts (*Danthonia longifolia* and *D. racemosa* types) fatten horses and dairy stock very quickly; while on the tablelands and slopes and

in the interior, some of the best sheep in New South Wales are raised on *Danthonia* grasses alone. Even when other grasses are completely dried up, the *Danthonias* will produce a fair amount of greenness in the bottom growth, and it is due to such feed that the Riverina can carry excellent sheep during a dry spring and summer. (Adapted from Bentham, *Flora Australiensis*, vol. 7, p. 595; and *Agricultural Gazette of New South Wales*, vol. 31, p. 24.)

Dioscorea alata (Dioscoreaceae), 54900. **Greater yam.** From Mayaguez, Porto Rico. Tubers presented by Mr. T. B. McClelland, horticulturist, Porto Rico Agricultural Experiment Station. "Purple Ceylon." This yam, so called because of the purple color of its flesh, was imported in 1908 from Ceylon for the experiment station, and, on account of its pleasing flavor, has become a favorite variety. Any part of the tuber may be utilized for planting with the assurance that it will yield a profitable crop. At the experiment station half-pound seed pieces cut from the lower part of the root produced an average of nearly 5 pounds per plant. This is a splendid weight for a root of the "Purple Ceylon" variety, and compares favorably with that produced by equal-sized pieces of the basal, or upper, part of the root.

The vines of this variety are long, large, vigorous, and four-sided. The blade of the leaf is 6 by 4 or 5 inches, and is dark green. A few small air tubers 2 by 1½ inches develop on the vines of this variety. The edible root is almost spherical or made up of two or three large round lobes. It never forms long, deep-growing roots. The starch content in the fresh root is about 20 per cent. After being cooked, this yam has a smooth, even texture and retains its dark-purple color. Its flavor is rich and pleasing and has been highly complimented by all who have tested it. (Adapted from C. F. Kinman, *Bulletin 27*, Porto Rico Agricultural Experiment Station, pp. 16 and 17.)

Dioscorea cayenensis (Dioscoreaceae), 54901. **Yam.** From Mayaguez, Porto Rico. Tubers presented by Mr. T. B. McClelland, horticulturist, Porto Rico Agricultural Experiment Station. "Congo." In Mayaguez this is called "Congo amarillo," but in the San Juan market, where it is found in greater abundance than other kinds, it is known as "Yellow Guinea." It thrives much better in sandy soil than most yams. The large roots attain

a length of a foot, are rather cylindrical, and average a weight of 4 or 5 pounds in favorable seasons. The interior of the starchy root is a rich light yellow and turns dark brown when exposed to the air. It is smoother and more even grained than the water yams and not less so than the roots of the "White Guinea" or the "Potato" yams. It is rich yellow and of good texture when cooked. The flavor is pleasant and compares favorably in richness with the best yams. The vines of this variety are not angled; they are small and very strong, and made a moderately vigorous growth. (Adapted from C. F. Kinman, Bulletin 27, Porto Rico Agricultural Experiment Station, pp. 20 and 21.)

"In addition to the data on quality given by Mr. Kinman, it may be noted that this yam has a slightly bitter taste; on this account special methods of cooking may sometimes be required. It is said that the bitterness is more noticeable in immature tubers than in fully mature ones." (R. A. Young.)

Dioscorea trifida (Dioscoreaceae), 54686. **Yampi**. From Gatun, Canal Zone. Tuber presented by Mr. A. V. Mitchell, through the Federal Horticultural Board. "A pink-skinned, white-fleshed 'yampi' of good quality. The tubers are long oval to club shaped and from 3 to 8 ounces each in weight." (R. A. Young.)

Gossypium nanking (Malvaceae), 54685. **Cotton**. From Unsan, Ping Yang Province, Chosen. Seeds presented by Mr. A. Welhaven, Oriental Consolidated Mining Co., through Mr. Ransford S. Miller, American consul general, Seoul. "This seed was grown in Pukchin Myon, Unsan Kun, North Ping Yang Province, (40° 10' N. 125° 55' E.) and is supposed to be the best produced locally." (Welhaven.)

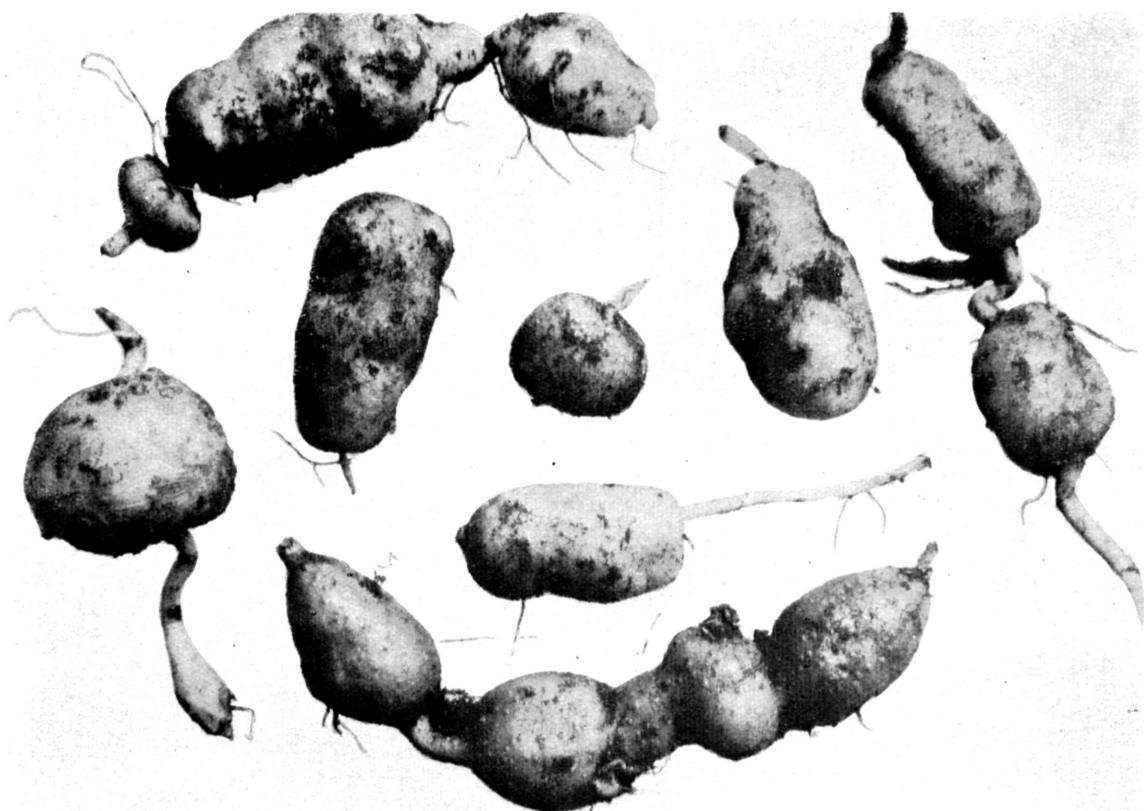
Hydnocarpus anthelminthica (Flacourtiaceae), 54726. From Chiangmai, Siam. Seeds collected by Mr. J. F. Rock, Agricultural Explorer, of the Bureau of Plant Industry. "This is a large tree about 50 to 80 feet in height, found along stream beds north of Chiangmai in northern Siam, and is apparently a new variety. It differs from the southern Siamese form in the fruit which is chestnut brown and neither velvety nor strongly lenticellate. The staminate flowers are on long pedicels and have no rudimentary ovary, but the pistillate flowers, which are on shorter pedicels and occur in the axils of young (this year's) shoots, have five short, sterile



WILD POTATOES IN THE ECUADOREAN ANDES.

(*Solanum tuberosum* L., S. P. I. No. 53187.)

The origin of the potato is somewhat obscure. It is generally believed that it is a native of the high Andean region of northern South America, perhaps extending southward to Chile. The plants shown above appear to be of the true wild species; they were found in northern Ecuador at an elevation of nearly 13,000 feet and are quite distinct from the cultivated potatoes of that country in the character of their tubers. The latter are too small to be of economic value, but the plant (which, it may be remarked, produces seed rather freely) will be of interest to breeders of this important crop. (Photographed by Wilson Popenoe, Hacienda La Rinconada, Ecuador, June 8, 1921; P18594FS.)



A WILD POTATO FROM THE ANDES.

(*Solanum tuberosum* L., S. P. I. No. 53187.)

These tubers were collected from wild plants at an elevation of 13,000 feet in the mountains of northern Ecuador, where the potato occurs as a wild and probably indigenous plant. It is easily seen (they are here shown natural size) that they are too small to be of economic value, but plant breeders in the United States will be interested in testing them, in the hope that they may show characteristics which it will be worth while to combine with our cultivated varieties by crossing. It is interesting to report that the potato disease *Phytophthora infestans* attacks this wild native species. (Photographed by Wilson Popenoe, Hacienda La Rinconada, Ecuador, June 8, 1921; P18595FS.)

anthers. The fruits are from 11 to 12 inches in circumference and contain from 20 to 35 seeds. They ripen in November, but fruits may be found on the trees all the year round. The tree is a very prolific bearer. December 29, 1921." (Rock.)

This tree yields an oil similar to that of *Tarakogenos kurzii*; the latter is, however, the source of true chaulmoogra oil.

Khaya nyasica (Meliaceae), 54920. From Mount Selinda, Southern Rhodesia. Seeds presented by Dr. W. L. Thompson. "The 'red mahogany' is one of our most valuable timber trees, and is widely distributed over Mozambique. It is fairly rapid in growth, though not equal to some of the eucalypts in this respect. It is found most often growing near streams but also on high ground at a distance from water. The timber is very durable and is not attacked by white ants or borers." (Thompson.)

A huge tree, 150 feet or more in height, with a very straight trunk and an enormous crown of handsome glossy foliage which is not eaten to any extent by locusts. The hard, red timber has a beautiful grain and is easily worked. The seeds are boiled and crushed by the natives, who use the resulting oil in their hair to kill vermin. The tree is native to Gazaland, Mozambique, where its native name is "umbaba." (Adapted from Journal of the Linnean Society, vol. 40 (Botany), p. 42.)

Mesua ferrea (Clusiaceae), 54687. From Buitenzorg, Java. Seeds presented by Dr. W. M. Docters van Leeuwen, director, Botanic Garden. A very handsome, pyramidal tree native to the hot moist regions of Ceylon, India, and the Malay Peninsula. The young leaves, which appear twice a year, are intense blood-red at first, passing through delicate shades of pink into dark green. The large, white, delicately scented flowers are produced profusely in April and May. The kernels yield as much as 70 per cent of very rich, clear, red-brown, somewhat perfumed oil which might be used for confectionery. The oil is used medicinally as a lotion. The dark-red wood is extremely hard and heavy, and when well seasoned is used for beams, masts, tool handles, in bridge construction, etc. Railway ties made of this wood were not attacked by white ants and were quite sound after four years' use. (Adapted from Macmillan, Handbook of Tropical Gardening

and Planting, p. 260; and Pearson, Commercial Guide to the Forest Economic Products of India, p. 68.)

Opuntia ficus-indica (Cactaceae), 54689. **Indian fig.** From Valetta, Malta. Cuttings presented by Societa Economica Agraria del Gruppo di Malta, Valetta, through Mr. Carl Loop, American consul. These cuttings were received in response to a request for propagating material of a nearly spineless variety introduced from Malta in 1903 (under S.P.I. No.9352) and said to bear yellowish orange fruits the size of a goose egg, of good flavor, and containing less than a dozen seeds.

Prunus mume (Amygdalaceae), 54709 to 54725. **Japanese apricot.** From Okitsu, Shiznokaken, Japan. Budwood presented by Prof. T. Onda, Bureau of Horticulture, Imperial Agricultural Experiment Station. Quoted notes by Prof. Onda unless otherwise specified. "The first trees to flower this spring at Dr. David Fairchild's home, 'In the Woods,' near Washington, D. C., were the mumes or Japanese apricots. Nearly two weeks before the earliest of the flowering cherries were showing color,--even before the forsythias commenced to bloom,--the mumes were filling the yard with the fragrance of spring and brightening it with huge splotches of color.

"Doubtless our appreciation of these trees is increased by the fact that they are the first of all to bloom, but even after the cherries have commenced to flower, the mumes do not fail to delight us with their delicacy of color and their delicious fragrance, in which latter characteristic they possess a noteworthy advantage over the flowering cherries. Some of them have semidouble flowers an inch and a half in diameter and of the loveliest shade of pink imaginable; others are quite double, smaller and rose-red, and still others single white, double white, and so forth.

"It seems remarkable that Americans have not yet learned to appreciate these trees, and to plant them abundantly in all those parts of the country where they can be grown. Prof. Onda, in presenting the following excellent collection of varieties, has rendered a distinct service to American horticulture." (Wilson Popenoe.)

54709. "'Beni Kaga.' An early-flowering variety with medium-sized white flowers followed by medium-sized fruits."

54710. "'Beni Sashi.' An early-flowering variety

with small white flowers and small red fruits."

54711. "'Bungo.' A late-flowering variety with large light-red flowers and large fruits."

54712. "'Haua Kami.' A mid-season variety with rather small light-red flowers and medium-sized light-brown fruits."

54713. "'Inkyo.' An early-flowering variety with medium-sized white flowers and large fruits."

54714. "'Joshu.' A mid-season variety, with small, light-red, double flowers and large fruits."

54715. "'Kichirobei.' A mid-season variety with medium-sized white flowers followed by large fruits."

54716. "'Ko Mume.' A mid-season variety with rather small white flowers and very small fruits."

54717. "'Koshu.' A rather late-flowering variety producing small white flowers and very small fruits."

54718. "'Masui.' A late-flowering variety with rather small white flowers; the fruits are large."

54719. "'Rinshu.' A double-flowered variety, with medium-sized, light-red flowers produced late in the season. The fruits are large."

54720. "'Shidare.' A red-flowered form with drooping branches and rather small light-red flowers produced late in the season."

54721. "'Shidare.' A white-flowered mid-season form with drooping branches, rather small flowers, and small fruits."

54722. "'Shira Kaga.' A variety with medium-sized clear-white flowers produced rather late in the season. The fruits are large."

54723. "'Tama Mume.' A mid-season variety producing medium-sized white flowers with green calyxes. The rather large fruits are clear green."

54724. "'Unryu.' An early, double-flowered, variety suitable as an ornamental pot plant. The very crooked branches bear medium-sized white flowers."

54725. "'Yoro.' A rather late-flowering variety producing rather small, light-red flowers and medium-sized fruits."

Prunus salicina (Amygdalaceae), 54756. **Japanese plum.** From Harbin, Manchuria. Seeds presented by Mr. B. W. Skvortzow.

"Cultivated by the Chinese." (Skvortzow.)

This is a strong-growing small tree, native to China but cultivated in Japan, with showy white flowers and rather pointed fruits which are usually yellow or light red. Because of its great hardiness, vigor, and

fruiting qualities, it is introduced for experimental work by specialists of the Department of Agriculture.

Prunus tomentosa (Amygdalaceae), 54757. **Bush cherry.** From Harbin, Manchuria. Seeds presented by Mr. B. W. Skvortzow.

"Cultivated by the Chinese." (Skvortzow.)

"A very vigorous bush cherry which flowers much earlier than other cherries and bears when very young. Selected seedlings three to four years old have borne 15 to 20 quarts of fruits which make very fine jelly. In regard to the hardiness of this species, it may be stated that trees have successfully withstood seven winters in North Dakota. The tree is somewhat susceptible to brown rot on the twigs." (George M. Darrow.)

Rosa gentiana (Rosaceae), 54735. **Rose.** From Witcombe, Gloucester, England. Seeds presented by Lady Harriet Thiselton-Dyer. A vigorous bush rose, from western China, which makes tangled bunches 12 to 15 feet high and 15 to 20 feet in diameter. The 5-foliolate leaves are dark glossy green; the pure white single flowers, about an inch in diameter and delightfully fragrant, are borne in broad clusters and, unless damaged by storms, will continue to bloom for nearly two months. The bush should be given an isolated position where it can be left to develop, and should not be pruned. (Adapted from The Garden Magazine, vol. 23, p. 339.)

Saccharum officinarum (Poaceae), 54902. **Sugar cane.** From Brisbane, Queensland. Cuttings presented by Mr. H. T. Easterby, general superintendent, Bureau of Sugar Experiment Stations. A few years ago a variety of sugar cane, called "Shahjahanpur No. 10" was received by the Queensland Bureau of Sugar Experiment Stations from the Shahjahanpur Sugar Experiment Station, India, being recommended as a cane which would stand cold weather. This cane was planted out at the Bundaberg Station, where it was found to resist severe frosts remarkably well. Its sugar content and cropping qualities being good, it was ultimately distributed to a considerable extent in southern Queensland. A very fine block of this variety, about 12 acres in extent, was grown at Spring Hill. This cane presented a splendid vigorous growth when only nine months old, but it had never been affected by frost. If this variety maintains its reputation, it should be extremely valuable to cane growers who live in regions where frost

damage is common. The last analysis of the cane, made at the Bundaberg Station last year gave the following results:

Brix_____	21.7
Purity of juice_____	91.0
Percentage of fiber in cane_____	13.6
Commercial cane sugar_____	15.05

(Adapted from The Australian Sugar Journal, vol. 13, p. 336.)

Notes on Behavior of Previous Introductions.

Allium cepa (Liliaceae), 46664. **Onion.** From Honan, China. "This onion did very well last season; it produced seed and stood in the ground all winter and is now about a foot high." (John H. Oyler, Ash Flat, Ark., April 19, 1922.)

Dioscorea alata (Dioscoreaceae), 46801. **Greater yam.** From the Plant Introduction Garden, Miami, Fla. "The yams planted in 1920 came up last season and did much better than the first year. We saved at least a peck of vine tubers from them and expect to have a large quantity this year. We dug up some of the 1920 planting; the tubers weighed as much as 16 to 18 pounds apiece and we enjoyed eating them. Mrs. Tait thinks they are better than the Irish potato." (C. S. Tait, Brunswick, Ga., May 1, 1922.)

Juniperus chinensis (Pinaceae), 44234. **Chinese juniper.** From Peking, China. "The little Chinese juniper which you sent me in 1920 has lived through this winter and grown until it is over a foot tall. It is the hardiest of all the evergreens you sent me except the *Cephalotaxus* (*C. drupacea sinensis*, 40017. From Shensi, China)." (Lilla M. Harmon, Longmeadow, Mass., April 15, 1922.)

Lonicera sp. (Caprifoliaceae), 39697. **Honeysuckle.** From Nanking, China. "The honeysuckle sent to me some years ago has been a great pleasure to me this spring. It is about 7 feet high, and its delicate, beautiful green leaves appear in early March while other things are still dormant. In April it is one mass of small, white flowers which are of unusual attraction to butterflies." (Mrs. Samuel G. FitzSimons, Yonges Island, S. C., April 21, 1922.)

Notes from Foreign Correspondents.

Mr. John D. Wright wrote March 29, from Valencia, Spain, the following note on the carob (*Ceratonia siliqua*):

"I was told that Señor Peregrin Contell is devoting much effort to the cultivation of the 'algarroba' at his 'Masía' (Estate) an hour by motor out of Valencia, and that he has one particular tree which he calls 'El Capitan' from which he has grafted most of his other trees.

"Señor Contell very kindly consented to motor out with me this morning to the Masía de Mompó in the very fertile plain of Quartes. He is cultivating the 'algarrobo' as if it were a fruit or nut tree; he plows, fertilizes, and prunes with the greatest care and persistence. Of course results obtained in this way cannot be expected of trees planted on the slopes of dry foothills in California and left to chance. His trees are irrigated when the season is specially dry. I saw orchards three years old, twelve years old, fourteen and sixteen years old, and many trees which were much older.

"My special interest, being guided by your suggestions, was in his great 'El Capitan.' I made a photograph of this which I hope will turn out well. It is an enormous tree, the trunk having a diameter of about 7 feet, with a spread of branches exceeding 60 feet and a height of about 50 feet. Señor Contell tells me that he has a document witnessed by two persons to prove that he took in one year 2,625 pounds of pods from this one tree (105 arrobas at 25 lbs. to the arroba). He has a 20-year-old orchard (all the trees in which were grafted from 'El Capitan') that produces each year an average of 450 pounds per tree.

"The quality of these pods is excellent for cattle fodder, but they are not the very sweet pods that people like to eat. I am sending, through the courtesy of the consul, a small package of the pods of the 'El Capitan' type, though of course I did not see them picked as the fruit was gathered some time ago.

"I am also sending a few pods from the very sweet variety which is known locally as 'Roches,' or 'Reds.' These are not borne in the quantity of the 'Matalafera' ('El Capitan') type. I placed a paper with each package giving full particulars. I hope the pods with their respective notes will reach you. Señor Contell says that with the good soil of his orchards and the care he gives the trees they begin to bear after the fourth year and sometimes in the fourth year."

OFFICE OF FOREIGN SEED AND PLANT INTRODUCTION
BUREAU OF PLANT INDUSTRY
UNITED STATES DEPARTMENT OF AGRICULTURE

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