

asthma. Manufacturers of several well-known asthma proprietaries will be pleased to purchase the leaves from you.

If your interest has been aroused and you feel stimulated to try herb growing, I would suggest that you do it cautiously. Study the potentialities, and develop your work slowly.

If any of you come to Gainesville, I should be happy to show you the experimental drug garden; or if you will write I shall be pleased to send you

any number of these mints, about which I have spoken this afternoon.

Question: Does mint grow from seed?

Dr. Ireland: It would be better to grow mint from young plants. However, mint may be grown from seed. I have with me a few plants of peppermint, spearmint and Mountain mint, which I shall be pleased to give to those of you who would care to cultivate them.

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## THE LYCHEE

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E. L. Wirt, Babson Park

My interest in Lychees was first aroused in 1920 by the description of the tree and the fruit in the Royal Palm Nurseries catalogue.

That description seemed to leave but little more to be desired in a tropical fruit, yet I do not believe, in the light of my own later experience, that the description was overdrawn or the fruit over-rated.

In January, 1932, I planted ten trees in the partial shade of some large hickory and live oak trees and close to some Haden mango trees planted five years previously, which rapidly developed additional shade.

These trees were planted in Fort Meade loamy fine sand, and of the seven original trees now living, three are planted on level ground, three on the slope toward the lake and one near the bottom of the slope where the ground levels off before dropping to the water's edge. This soil varies from the characteristic Fort Meade fine sand in that it is underlaid at a depth of from two to six feet by a clayey sand-stone ranging in color from red to yellow instead of the usual phosphatic rock.

The native growth on this land was largely oak and hickory.

The development of the Lychee trees is best on the level ground where drainage is not excessive. The poorest development is at the foot of the slope where the soil is shallow and dry.

Planted in 1922, the trees first fruited in 1927 and a scattering crop was matured in 1928, since which time I have had a crop every year except one. The quantity of fruit has varied considerably, but I have no definite explanation for this variation. Probably the soil moisture has been the principal factor.

Of the ten trees planted, only eight grew, and of these the fruit of one had slightly different characteristics from the others—a higher color, better flavor, heavier and more regular crops. But this tree died from oak root rot fungus about 1932, proving the susceptibility of the Lychee to this fungus. However, the fact that I have a considerable number of young Lychee trees on the place and have suffered no other infections where other trees known to be readily susceptible to the fungus, such as loquats and guavas and various ornamentals, have suffered a high mortality, indicates that Lychees are fairly resistant to the fungus.

I have not tried to develop a market for this fruit because of my desire to use the seed for propagation purposes, but have sent some fruit to Gainesville, Orlando and elsewhere for analysis and other investigation work. I have tried propagation by both layering and air-layering with some success. Layered trees bear much younger than seedlings here as in China; thus perhaps explaining divergent opinions as to the age at which this fruit will bear.

In fertilizing I have used the same formulas that I have applied to my citrus, usually a 3-8-8 or 4-8-8 with 50% or more of the nitrogen derived from organic sources, and have applied about the same quantity as for citrus trees of the same spread. The leaves falling from the trees have formed a heavy mulch and I have not cultivated. The mulch and shade have discouraged cover crops and I think have encouraged the development of the mycorrhizal fungi which authorities agree are beneficial if not essential to the vigorous growth and productivity of this fruit.

The trees grow continually and there are new flushes of growth at frequent intervals throughout the year. This lack of dormancy may contribute to irregular crops. The new growth, like that of the mango, is a light pink color and becomes dark green when mature. Bright sunshine has a tendency, I think, to make the foliage lighter colored, though this is not conclusive, as the trees I have used in comparison are on a different soil and may have had different care. This new growth, while tender in appearance, will stand more cold than you would expect. My trees showed both new growth and bloom at the time of the freeze in December, 1934, when my thermometer registered 29 degrees F. for a short time and neither foliage nor bloom suffered any damage whatever, while both foliage and twigs of mangoes showed some cold damage.

This bloom in December, 1934, was the earliest bloom the trees have ever had. This year the bloom occurred in March, which is a little later than normal and also lighter. I am inclined to associate an early bloom with a full crop.

The crop usually ripens late in June and will hang on the trees through July, though in 1935 one tree held the fruit in good condition through August. There was no apparent difference in either appearance or flavor between this late crop and the fruit from the other trees that ripened in June and early July.

A peculiarity of this fruit is that when picked from the stem it quickly turns brown and the shell or skin dries, but if picked with several inches of the stem attached the natural color is retained for several days, drying is postponed, and the fruit will carry some distance. Last year

fruit from my trees, shipped by Mr. Groff and Dr. Traub, carried in good condition to Massachusetts, Pennsylvania, New York, California and Washington, D. C., retaining both color and flavor. Previously I had made a small shipment to Oregon and they were reported to have arrived in good condition.

I am of the opinion that shade has much to do with my protection from cold and I know that my location, practically surrounded by water, has been free from serious frost damage to tropical plants for twenty years.

These Lychee trees are also quite resistant to storm damage. The wood is willowy and tough. My place was within the center of both the 1928 and 1933 storms and while hickory trees three feet through were snapped off like matches, these Lychee trees had no more serious damage than loss of some foliage; while the mango trees around them were badly broken up.

I have had no pruning to do except a limited amount of dead inside branches.

My trees are now badly crowded. They were planted too close and surrounding trees have spread so as to give them excessive shade. It remains to be seen if this will affect future crops. This year the lower branches put on very little bloom, although I trimmed the mango trees around them severely.

I have had no disease or pests to fight except in the case of the one tree I lost from oak root rot fungus.

The trees I have brought into bearing are all of the Brewster variety, a highland type, but I have several young trees of the so-called "water" type, which in China is said to comprise their best varieties. If they do well here it may prove a profitable as well as a pleasant experiment.

As an example of the effect of moisture and deep good soil on the development of Lychee trees I submit some measurements of one of the three larger trees where drainage was not excessive and the smallest tree well down the slope where soil is shallow and drainage is excessive. Both trees are fifteen years old.

Diameter 6" from ground	11" — 4½"
Spread of tops	27' — 12'
Height of trees	29' — 13'

Add to this difference the fact that the smaller tree has never matured a decent crop of fruit and you can readily appreciate the importance of proper soil conditions.

Young trees planted in full sunlight have not done well. On the other hand, too much shade has been just as bad.

My son has planted seventy-five one-year-old seedlings on Portsmouth fine sand where at times the water table is rather high. I am doubtful if this Brewster variety is suited to that soil condition. Maybe the water type is. I am trying to find out. The Brewster variety, however, does fairly well on Norfolk fine sand, though the growth is decidedly slower than on good hammock soil.

Question: You mentioned that trees could be planted too close, or crowded, and that excessive

shade affected the crop of fruit. How close should trees be planted?

Mr. Wirt: Not less than thirty feet. These are about twenty feet. Mr. Cook thought that was far enough. He arranged my planting for me, and I depended upon his judgment.

Question: How long a time will the seed remain vital?

Mr. Wirt: About two weeks. Anything over a week or ten days I should say you would lose a large percentage. That was my experience last summer.

Question: Do you plant the fruit?

Mr. Wirt: No, I plant the seed.

Question: How large is the fruit?

Mr. Wirt: About the size of an egg.

Question: How large are the seed?

Mr. Wirt: As large as your finger joint. They vary—some have smaller seed.

## LYCHEES IN THE P. W. CAMPBELL GROVE IN ESTERO PARK, FLORIDA

Mrs. Edith C. Trebell, Estero

We have two Lychee trees which are planted about 160 yards to the north of the Estero River. Our sandy soil has a yellow subsoil and is well drained. A rocky ridge runs parallel to the river just to the north of the trees and many rocks are scattered through the soil around them.

We purchased the Lychees from the Royal Palm Nurseries at Oneco in 1921 and planted them in places where Lychees (which had died) had previously been planted.

They were slow growers, maybe because they didn't get much attention until they fruited in 1931. They had been given a little of whatever fertilizer we were using for avocados or citrus along with some poultry manure.

After fruiting we gave them better care. They were growing fast and were about 14 feet high. One had a spread of about 18 feet, while the other was about as broad as it was tall at the time of

the December, 1934, freeze. All branches were killed back to the trunks then.

In regard to comparative cold susceptibility: Large avocados of the same age were frozen as badly as the Lychees. Large mangoes were frozen to six inch wood, and oranges were cut back to two inch wood. The Lychees have stood temperatures of about 28° a number of times and shown no ill effect.

The trees were slow to start growth after the freeze. New growth is much damaged by strong winds. The larger tree is now 7 feet in height. I have no doubt the trees would have been larger if I had not left so many branches ringed for layering. A few of the branches have bloomed and have set a few fruit.

Previous to the freeze the Lychees produced fair to good crops of delicious and beautiful fruit. The trees themselves are beautiful at all seasons of the year.