SOME ASPECTS OF THE LYCHEE AS A COMMERCIAL CROP

GORDON PALMER, PRESIDENT
Florida Lychee Growers Association
Osprey

During the past few years especially, considerable research work has been done on the cultural requirements of the lychee. The findings have been reported, principally in various publications of the State of Florida, of the Horticultural Society and of the Florida Lychee Growers Association—all readily available to the lychee grower and to anyone else interested. There is however one important aspect of lychee growing outside of the sphere of these technical publications and on which almost no information is available. This is the economic aspect of lychee growing and the commercial possibilities of this interesting fruit from the point of view of the grower or prospective grower.

Historically one of the oldest known of all fruits, the lychee is recorded in Chinese documents dating from the 12th Century and there are literary allusions to it indicating it may have been known in China as early as 1500 B.C. Its early plantings appear to have been widespread through favorable climatic areas in India as well as China where a great many different varieties of the trees are still being grown commercially today. Most of this fruit is consumed at home, apparently, though small quantities of dried fruit, known as “Lychee Nuts,” and of canned fruit are being imported into the United States from Hong Kong.

South Africa has been growing lychees commercially probably for a century or more, the predominant variety today being known as the Mauritius from its origin as a seedling selection made on the Island of Mauritius in the 1870’s. Most of the present day crop, amounting to something like a million pounds yearly, is consumed locally, though because of the critical transportation difficulties in South Africa, much of it spoils before it reaches the widespread local markets. Some experimenting has been done with shipping fruit to England under refrigeration, but this apparently has proved too hazardous to be a really attractive large scale venture until some better means is found to reduce the losses from spoilage.

Hawaii has also had the lychee for many years, but more as a dooryard novelty than as a commercial crop until the recent development of new varieties which may show promise of economically attractive yields in that climate.

The lychee was introduced into Florida in the 1880’s but remained in the novelty category until the 1940’s when Col. William R. Grove began experimenting toward developing a new commercial sub-tropical fruit crop for Florida. With his discovery and perfecting of a method of propagation by marcottage using polyethylene, quantity production of true-to-variety lychee nursery stock became practical and the lychee was launched as a commercial proposition.

Before going any further with the discussion of the economics of the lychee in Florida, it would be well to point out that almost all of the present commercial plantings in the state stem directly or indirectly from Col. Grove’s work with the Brewster variety of lychee. Accordingly the Florida lychee as presently grown should more correctly be termed the Florida Brewster lychee and for the purposes of this paper it is to be considered as such. Various work is now being carried on with other named lychee varieties, as well as with new seedling stock, the results of which could radically change the whole lychee picture as it is given here.

Col. Grove’s close contact and common interests with lychee growers whom he had interested led to the formation in 1951 of the Florida Lychee Growers Association, a growers’ cooperative to handle the marketing of lychees, to coordinate research on the lychee and generally to promote the best interests of the industry.

Today our Association includes 85 growers and also has a professional membership of 35 scientists and other persons who are doing research work on lychees or who have a col-
lateral interest in them. At a count taken last May the total number of lychee trees being grown by our membership amounted to some 13,500, representing plantings of perhaps 250-300 acres.

Our Association has marketed the fresh lychee crop for four years now. In 1953 we ourselves handled the marketing and distribution of the crop, amounting to some 7,500 pounds. In 1954 and 1955 our marketing was handled by the Florida Citrus Exchange, some 9,500 pounds of fruit in 1954 and some 22,000 pounds of fruit in 1955. This past summer we returned to doing our own marketing with a crop of about 20,000 pounds. Shipments have been made by air-freight to various markets all over this country, as well as in Canada. Prices on the f.o.b. point of shipment basis have ranged from a top of $1.00 per pound to a few shipments which reached a low of 50c per pound at the peak of the 1955 harvest. This past year our prices held consistently at 75c per pound, f.o.b. The basic market for lychees is found among the centers of Chinese-American population where the fruit has been known for generations. More and more each year, however, our crop is being introduced to the non-Chinese public.

This then is the background of the present day lychee industry in Florida. What is its future? What are the economic possibilities of growing lychees? These are the questions on which there is little available published information. Because the industry is so new, there are not even any statistics either as to the cost of maintaining a mature grove or as to the expected production from it. No one has yet brought a grove to a point even approaching maturity.

What I would like to tell you today is how a lychee grower looks at the future of the industry and what he hopes the lychee will do for him. What I say is a compilation of the experiences of other individual growers and myself to date and our conjectures for the future. Please accept these statements in this light and not in anyway as expressing the official opinion of the Lychee Growers Association. The Association has not taken any official position on the subject.

Lychees will ordinarily grow on any land that is suitable for citrus. Their cold tolerance at maturity is thought to be about that of citrus and, incidentally, they are not, as far as is known, affected by the burrowing nematode. Because they may reach a huge size they are ordinarily planted 40 feet apart with one tree in every center (which can be removed later if the trees get crowded.) This means an initial planting of about 50 trees to an acre with a possibility of later thinning to 25 trees to an acre. Many growers, however, plant lychees on much smaller centers, either with the idea of getting earlier quantity production from more young trees per acre, or because they feel their land may not be optimum to support the full potential growth of a mature lychee.

Cost of land preparation is about the same for lychees as for citrus and the planting again about the same, except that the trees cost more than citrus, ranging from about $2.00 to $3.00 each, and up, depending on size. Cost of maintenance except for fertilizing should not greatly exceed that of citrus because care and cultivation practices do not vary greatly costwise. There is however, reason to believe that lychees may require more fertilizer than citrus. Small trees should begin producing within 4 or 5 years when they have reached a height of 5 feet or more. Within another 10 years, at a 15 to 25 foot size, the trees should average a yield of 100 lbs. of fruit per tree annually. As the trees grow on toward maturity a planted acre should be expected to yield 10,000 pounds of fruit per year, whether this be from a few large trees or from many smaller trees planted closer together.

While on this subject of yields I should point out that these figures could easily be much too conservative. In South Africa 10 to 12 year old trees at one of the large lychee plantings have produced an average of as much as 225 pounds per tree in a good year. There are also some magnificent 25 year old plantings in South Africa with trees 50 feet tall and 40 feet across and still growing. These trees have yielded up to an average 600 pounds per tree, but again this was in an especially good year. Year in and year out they are counted on for a production upwards of 300 pounds average each. There is also reported a phenomenal yield of 1,200 pounds one year from an old lychee planted here in Florida in the St. Petersburg area.
You will observe that one qualification of the question of yields is the fact that lychees do not seem to bear consistently. A tree which grows 50 pounds of fruit in one year may only have a 20 pound crop the next; the third year the same tree might yield 100 pounds. This matter of erratic bloom and fruit set is one on which research is being done.

But assuming an average yield of 10,000 pounds per acre, maintenance costs of $300.00 per acre, per year (which amounts to somewhat more than the average cost for citrus) plus a contingency reserve of another $200.00 per acre to cover return on investment, potential losses from hurricanes, frosts, floods, fires, etc., would mean that lychees can be produced for about 5c per pound. Add to this 2c for picking, 3c for packaging materials, 3c for grading and packing, 1c for delivery to point of shipments, 3c for delivery to Northern markets, 5c for advertising, marketing costs, Association fees and the like, and you have a total of 22c per pound of fruit delivered in New York City, for instance.

When production costs can be brought down to these levels (and quite possibly to even much lower levels), lychees will no longer be classed as a luxury fruit and will be in position to compete in price with grapes, strawberries, cherries and all the rest. And from the grower's point of view, half pound packages of the fruit wholesaling at 16c to retail at 20c to 25c would return him something like $1,000 an acre.

This gives the grower a rosy picture production-wise, but the crucial question is whether or not his crop can be sold to the retail trade, at 16c a half pound or for that matter at any price at all. How does the lychee fit into the retailer's picture?

From the point of view of the retail grocery or supermarket an ideal product is one which is well enough known, reasonably enough priced, and in enough demand to turn over rapidly and in large volume even at a small profit margin without special merchandising and promotion. It must be of standard dependable quality, stable and non-perishable so that it needs a minimum of special handling. It should be readily available at all times in sufficient supply to meet demands. Unfortunately the lychee, at the present time, does not qualify in any of these categories.

The most persistent agony that plagues the lychee is its very limited 10 to 14 day shelf life, combined with its short 6 weeks harvesting season, with the bulk of the crop ripening during a 15-day midseason period. The fruit cannot be picked early to ripen off the tree, and when it does ripen on the tree picking cannot be delayed.

An immediate answer to the perishability problem involves a better means of preservation through packaging or otherwise to lengthen the shelf life of the fresh fruit, and research now being carried on will undoubtedly develop some relief along these lines.

A long-range answer to the problem of the brief harvesting season will come when present research discovers new varieties or develops existing known varieties with earlier or later maturities than the Brewster of the existing commercial plantings.

Actually, both of these problems could be at once eliminated if the idea of marketing fresh fruit were to be abandoned in favor of processing the lychee and thus making it a non-perishable product in year-round supply. What are the prospects here?

First of all the lychee deep freezes extremely satisfactorily, as a whole fruit in its natural state without any preparation. Although some further study is needed as to the best technique of freezing and holding, it has been shown that when properly handled the lychee can be kept frozen for at least several years without loss of quality. Canning offers what now seems a somewhat less attractive processing opportunity and a third type of processing by dehydration has been successfully practiced by the Chinese for centuries in the production of the dried "lychee nut." This may someday have commercial possibilities in Florida, but probably it will always be limited to the drying of the culls unmarketable fresh or frozen because of skin discoloration, etc. Even at this year's exceptionally high $1.15 wholesale price of scarce dried lychees being imported from Hong Kong, they do not offer an attractive proposition for top grade Florida fruit because it requires about 4 pounds of fresh fruit to produce one pound of the dried.

But above all of any of these other problems, the basic need of the lychee is public demand. Today the lychee is virtually unknown, a high-priced novelty which does not
yet fit into any of the eating habits of the American public. The lychee needs to become recognized, and take its proper place beside the plum or the cherry or some of the other specialty fruits in the American diet. Where it has this recognition and demand as in the case of the Chinese centers of population, in spite of all its other distracting drawbacks as a marketable product at the present time in today's stage of development, it has shown that it can be sold in quantity.

With this ready-made Chinese market as a safety-valve, our Association has to date purposely made only a most limited effort to create a recognition and demand for the lychee in its potentially huge American market. We have not had enough fruit to offer even to justify a modest merchandising and advertising campaign. We have even agreed to resist the tempting offers of one or more national magazines who want to do illustrated feature stories about the lychee. Maybe we should be criticized for this, but we have felt that the benefits of any such magnificent free publicity will be largely wasted until we are at least able to begin to supply the demand that might be created. Until our crop increases to the point where we can afford to spend some money on promotion, and have enough fruit so that even the most modest response will not clean us out and leave us unable to fill orders, we have felt we have no alternative but to mark time.

Some mention should be made of the matter of lychee production and in other areas of the world where they might be grown and the possible competition it could offer now or in the future to the Florida lychee industry. The presently known varieties of lychees demand a very special climatic condition. They grow in Florida where citrus will grow, but unlike citrus they will not grow and produce commercially in comparable California citrus areas. The Hawaiian plantings so far are negligible commercially—most of the trees are in backyards, and I think I read somewhere that the largest commercial concentration of trees amounted to less than an acre in size. Processed fruit from China and India may some day be a factor if the market for processed fruit is developed in this country. The same applies to production of processed fruit by South Africa.

But here again, this whole problem may be academic. Keep in mind that at the present time the existing lychee plantings in Florida have a potential of perhaps 2½ to 3 million pounds of fruit. Set this production off against a potential market of 160,000,000 people in the United States and even as fresh fruit during a brief season it does not go very far. We feel we can look ahead many years before anything like a saturation point can even be approached, even with Florida plantings many many times the present acreage in lychees today.

All in all, the situation seems to boil down to just this. Although the lychee has certain marketing drawbacks which we feel certain will be corrected or by-passed, basically it is a good fruit. People who taste it, like it. Increasing numbers are becoming repeat customers year after year as we can see from our growing direct-by-mail business. Market-wise, it will need vigorous promotion to introduce it to the American public. But as production increases, more money will become available year by year for advertising and merchandising. Actually we are in the enviable position of not having to face the expensive task of trying to open the whole market at one time. We can do it slowly, piecemeal, keeping the friends we make from year to year as repeat customers in the years that follow. In a nutshell, we have every right to a confidence in the lychee as holding great promise as a profitable commercial crop.