dicted from the elements we see about us. That it will include plants, a greater appreciation of their beauty and usefulness, I would certainly like to believe. The growth in public support of such ventures as the beautiful gardens all over the country would seem to support my faith. What could be more encouraging than the public attendance this season at the hundreds of flower shows, and at the beautiful gardens like Magnolia in Charleston, Vizcaya in Miami, the Highlands Hammock at Sebring and the lovely McKee Jungle Garden here at Vero?

AVOCADO VARIETIES IN THE LIGHT OF RECENT EXPERIENCE

Dr. H. S. Wolfe, Homestead

Four years ago Mr. L. R. Toy, then a member of the staff of the Sub-Tropical Experiment Station, discussed with you the avocado varieties most desirable for planting. Two years later he addressed you again, and described in masterly manner the characterists of several rather new varieties, with recommendations as to their desirability for planting, based on the evidence then available. This list of varieties differed in several cases from that offered in 1931. It is an indication of the state of flux in which the Florida avocado industry finds itself that I am asked to speak again to you this afternoon on the same general topic and that I have some further changes to make in the recommendations.

Let me be quite clear on one point at the very outset, however. There is no more difficult phase of avocado growing today than the selection of varieties for planting and topworking. What I shall say on this subject does not represent my own opinion, which it has been hard to form unaided, but is the result of consultation with leading growers all over the avocado growing sections of Florida.

One of the factors in avocado selection which is most hard to evaluate is the season of fruiting which should be sought. The unfortunate Trade Agreement ratified with Cuba last summer has temporarily made our summer and fall varieties seem rather unprofitable, but we do not know how long this condition will maintain. If we had certain knowledge that there would be no curtailment of Cuban competition for the next ten years, then we could proceed with some confidence to the choosing of varieties which mature after the Cuban season is ended. If, however, the Cuban invasion is diminished appreciably in the next few years, either through the revision of the Trade Agreement with some slight consideration for home industry or through action on the part of Cuban shippers, then our West Indian varieties will be very profitable. In this uncertain state of knowledge, it is unsafe to offer recommendations except with an eye to all possible contingencies.

The extraordinary cold weather of the past winter has caused some changes in our estimate of certain varieties. The variety whose cold resistance was most outstanding was Taylor. Fairly close to it, but definitely less hardy, were Lula and Itzamna. Still fairly hardy were Dunedin and the various Booth seedlings. Waldin, Wagner, Collinson and Linda were hurt to a large extent, but were noticeably more hardy than most West Indian varieties. Very tender to cold were Trapp, Pollock, Winslowson, Simmonds, Fuchsia, Schmidt and Peterson. All of these varieties were observed where a temperature of 26° F. had been in force of several hours. The Mexican-West Indian seedlings originated by Mr. Sexton of Vero Beach have proven less hardy than it was hoped they would be. Their ranking was below Lula. Another variety which we had hopes would prove especially suited to culture in the northern range of avocado planting was the Nehrling. I am indebted to the kindness of Mr. T. Ralph Robinson for information that in Orlando this variety proved much less hardy than Taylor under the

same conditions. At Homestead the same observation was made by the writer.

When a survey of growers on the lower East Coast was made four years ago, the Collinson variety was found to be favored by the majority of them as the first choice for planting. A similar survey today shows that Taylor is now the leading variety in the growers 'estimation, and that Collinson has sunk to the low place formerly occupied by Taylor. Four years ago the order of ranking of some of the standard varieties was: Collinson, Lula, Waldin, Trapp, Pollock, Taylor, Schmidt. Today the ranking of a slightly longer list of standard varieties is: Taylor, Wagner, Waldin, Lula, Trapp, Peterson, Fuchsia, Pollock, Winslowson, Schmidt, Collinson. Taylor is a variety of good size and appearance of fruit, maturing at a desirable season, and of very fair bearing habit. Wagner has fruit resembling Taylor, although it is more subject to black spot, and slightly later in season, with as good or better bearing quality. Waldin is an old and reliable variety, which tends to overbear one year and rest the next. A prolific variety in its bearing years, the fruit is often too small and sunburned because the drain on the tree has defoliated it somewhat. Many growers are favoring a comparatively new variety, Peterson, for the same mid-season period formerly dominated by Waldin. It is apparently a good bearer and a better looking fruit than Waldin. However, Waldin still is very well considered by most.

Lula continues to hold a high place in the list of varieties. Its unusually prolific habit compensates for its equally unusual susceptibility to scab. The fruit is not so attractive as Taylor, which has the same season, and is larger also, whereas the market demand is mostly for small fruit. The flavor of Lula does not appeal to many. Trapp is the old reliable of the West Indian varieties. Only Cuban competition holds its planting down. Fuchsia was hailed as the needed extra-early variety, to catch the June market, and was extensively planted for a few seasons. A number of unsatisfactory features have appeared with further marketing of it. The evidence seems to show that this variety does not ripen very satisfactorily when shipped in June, and does not carry at all well when shipped in August, at which time the fruit has best quality. Until we find a variety which is really good in June, however, Fuchsia will continue to be our early variety..

Pollock has been very generally and widely condemned for its poor bearing habit and the large size of the fruit. Its really fine quality and its comparatively early season have prevented more topworking of it to more prolific varieties. There is no really good summer variety to replace it. The Simmonds has not attained much favor, in spite of slightly better bearing habit than Pollock. Winslowson is another variety very generally disliked for the large size and poor shipping habit of the fruit, although it bears heavily as a rule. Its injury by the cold of last winter has encouraged its topworking to better varieties. Schmidt is a very late maturing variety, but is large fruited and a very shy bearer in the experience of most growers. A few have found it to bear well, but most have not. The tree is weak, unless it is worked on a large stump, and the cold injured the variety to an unexpected degree. A variety of similarly very late season and much better size of fruit, bearing habit, cold resistance, and tree vigor is Itzamna. Linda is a variety maturing in mid-winter and of superlative quality of fruit. Its fruit is too large, however, and its purple color is unattractive, so that it is not considered desirable for further planting. Its tenderness to cold was surprising also. Collinson has lost its former place of esteem because of its large size and its rather poor bearing habit. A large part of this low yielding characteristic may be due to the fact that Collinson has often been planted in solid blocks or interplanted only with varieties of its own class. Being totally devoid of pollen, it cannot pollinate itself even in times of very irregular flower behavior. However, Taylor matures at the same season and has better size of fruit, without the lack of pollen.

Several of the Booth seedlings, known only by number, have been planted on a fairly large scale by some growers. Notably this has been true of Nos. 3, 7 and 8. Their chief virtue was the prolific habit of bearing, but under conditions of more extended planting this habit has been less marked. Growers are making haste slowly in the matter

of topworking to these varieties ,and are working to Taylor, Wagner, and Lula instead. Nirody has not been found desirable on further trial, and the highly colored Collinred B has not fulfilled its early promise of merit. The Sexton seedlings have been found to mature in October at Homestead, and their lack of more than ordinary resistance to cold makes them of questionable merit for planting in the central part of the state, where it was hoped they would find a definite place. The tenderness to cold of the Nehrling makes it similarly unsuited for extending avocado culture northward.

All of the above new varieties seemed promising two years ago, but no longer do so. For this reason I am hesitant to recommend any new varieties for trial, although there are still a few which may prove very meritorius. Sooner or later we shall have better varieties than now, but some one must raise and test them as seedlings before we can have them. Every grower interested in the future of the industry should grow a few seedlings for trial. Taylor, Lula, Waldin, Fuchsia, Peterson, Trapp—all of these were Florida seedlings. Only Wagner and Itzamna of the varieties now favored were introduced as varieties.

In closing this discussion I wish to say a few words about the West Coast, although my acquaintance with it warrants only a few. The previous statements have been based on East Coast conditions. On the West Coast the Lula, Itzamna and Dunedin varieties have shown both cold resistance and good bearing habit. Linda has also done very well, but is less hardy and has fruit too large for most markets out of Florida. A Mexican variety originated by John Beach many years ago has been propagated by Mr. Mose Goering of Anona, and has shown itself exceptionally vigorous, hardy and prolific. While it is reported to have proven unsatisfactory on the East Coast, it seems very promising for the West. It is believed that Taylor will also prove valuable there, although to date no plantings of it have been found.

THE COMPOSITION OF NUMEROUS TROPICAL AND SUB-TROPICAL FRUITS

A. L. Stahl, Associate Horticulturist
Florida Agricultural Experiment Station
Gainesville

The increasing demand for a greater variety in fruits throughout the year and the realization of the value of fruits in the daily diet are proof that the fruits grown in the tropics and sub-tropics will be more and more in demand by the people of the other sections of the United States to supplement their own fruits. There are more than six hundred edible fruits found in the tropics and sub-tropics and of these less than fifty are in general cultivation with not more than twenty being sold commercially. Of these twenty, only a very few are known to the entire population of the country. There is opportunity, therefore, for an increase in the number of kinds of fruits that may be popularized in all of the markets of the United States. With the present-day transportation and refrigeration facilities, it is now possible to ship most tropical fruits long distances. The appearance of more and more Florida fruits in ever increasing amounts has already taken place in northern markets as well as our own. By reason of the nearness to large centers of population, Florida is well fitted to introduce and popularize the tropical and sub-tropical fruits which she herself finds are palatable and profitable.

Wide competition in the production of many of the tropical fruits does not have to be met, owing to the restricted area adapted to their culture, and the returns per unit for these fruits should be greater than for the abundant, com-