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## **CITRUS GROVES IN FLORIDA.**

### **Practical Information Relating to Planting, Cultivating, Gathering and Marketing Oranges, Grapefruit, etc.**

By Ezra J. Stewart.

So important has Citrus culture become in Florida that volumes have been written explaining up-to-date methods of growing the orange, lemon, lime, grapefruit and mandarin—all members of the Citrus family. During the past 15 years methods of cultivating, fertilizing, and propagating citrus trees have undergone a decided revolution, and results show great benefit derived from the study and practice of modern systems.

Undoubtedly the first orange trees grown in this State were sweet seedlings, and it is probably true that the reputation which Florida has always enjoyed for citrus fruits of superior quality can be traced directly to oranges from these trees. Many growers still think highly of the sweet seedling tree because of the sweetness and fine flavor of the fruit, altho on account of the time required (five to seven years) for these trees to come into bearing they are gradually becoming superseded by more rapidly-bearing budded trees.

Nowadays in Florida three classes of citrus fruits are largely cultivated; namely, sweet oranges, grapefruit (pomelos), and mandarin or tangerine oranges.

Lemons, limes and kumquats are grown to a considerable extent, altho not so much for money crops as the former groups.

### **Nursery Stock.**

There are nurserymen and nurserymen, the same as there is said to be doctors and doctors, and a good deal depends upon one's selecting the right kind of nurseryman from whom to buy trees when contemplating the setting out of a young orange grove. This applies with peculiar force to newcomers, those who are inexperienced in orange culture. It is quite necessary that citrus trees, other fruit trees, shade and ornamental trees be purchased from nurseries which are exempt from the white fly (*Aleyrodes citri*), an insect which if once allowed in a grove becomes a great pest, reducing the yield of fruit from 25 to 40 per cent.

I have obtained a list of Florida nurseries which are said to be exempt from this enemy to all varieties of citrus, and append the same to this paper

for the benefit of newcomers who think of planting any kind of nursery stock in and around St. Cloud, where the white fly has not yet appeared.

### **Different Varieties of Oranges.**

As oranges are shipped from Florida to Northern markets beginning in October through to February and March, it is necessary for the beginner to determine the varieties which he desires to plant, whether early or late. Among the reliable early varieties for Autumn shipping may be named the Centennial, Parson Brown, Boone's Early, Nonpareil, Homosassa, Tangerine, Mandarin, and Satsuma.

Perhaps the midseason oranges should form the largest portion of a commercially-profitable grove, as this fruit is generally more perfect, retaining its superior quality for many months. This gives opportunity for picking and shipping along an extended period of time, thus keeping the market evenly supplied until late varieties are ready for shipment in the Spring. A glut in the orange market is thereby avoided.

From a list of midseason varieties may be culled the following: Jaffa, St. Michael, Maltese Blood, Majorca, and Pineapple.

California oranges begin to move in February, when all but the late Florida varieties are marketed. Hart's Tardiff, King and Valencia Late are good late shippers for Florida growers.

### **Grapefruit and Mandarin.**

The demand for grapefruit (sometimes called pomelo) increases steadily as this refreshing and healthful fruit becomes better known thruout the Northern and Western States. Perhaps grapefruit shipments form more than one-fourth of the citrus fruits shipped from this State; the tendency in modern citrus culture is to increase the acreage of grapefruit trees.

The names Mandarin and Tangerine are applied to that group of citrus fruits known as "Kidglove oranges," a fancy kind (*citrus nobilis*), originating in Cochin China, and introduced into the United States sometime between 1840 and 1850. They are thought to be somewhat hardier than sweet oranges, and command a good price in Northern markets.

There are about six varieties of mandarins now in common use; namely, China, Cleopatra, Dancy, King, Oneco and Satsuma. Among these the King (King of Siam), a prolific variety of excellent quality, is latest of all, ripening from February to April.

## **Transplanting Young Trees.**

It is generally agreed that Fall and Winter are the best times for planting citrus trees in Florida. Trees transplanted in November or December, when the earth is moist and cool, soon begin starting new roots, and by the ensuing Spring will have gotten a firm hold in the ground. A rapid growth will likely occur when vegetation becomes active, and when a dry season strikes them they may be expected, with proper cultivation, to go through without resort to irrigation.

A not uncommon mistake, especially with those unused to setting out fruit trees, is to plant their groves too close. Large-growing varieties should be planted at least 25 feet apart each way—64 trees to the acre, as well as the kidglove oranges. Kumquats are planted 10 feet apart.

In transplanting citrus trees the general rule for tree planting applies; viz, plant no lower in the ground than trees originally stood in the nursery. It is perhaps advisable to elevate about an inch, care being taken not to bunch the roots; they should be spread out in as nearly a natural condition as possible. One good watering will settle the earth firmly about the taproot, and after tamping the earth all around the trees they are in condition to be left severely alone for a time at least.

## **Soils and Methods of Cultivation.**

Since the soils of this State are so extremely varied, it is but natural that a difference of opinion should exist among growers of citrus fruits regarding the best methods of grove cultivation. Some growers practice almost constant cultivation, while others do not cultivate the soil at all. After all it depends largely upon the character of the soil upon which a grove is planted as to which method is best. On high pine lands, such as we have in the interior, or on lands naturally deficient in moisture, the ground needs to be stirred frequently to form a dust mulch, to prevent the evaporation of moisture. On naturally moist soils, low damp land, cultivation is, of course, not needed to any great extent.

Land suitable for citrus culture is generally lacking in humus, a most important ingredient of fertile soils, and as humus is obtained by the decay of organic substances, it becomes necessary to cover the ground with some sort of vegetable growth in order to obtain a plentiful supply of this very essential element. For this purpose some plant cowpeas and beggarweed, a plant similar to alfalfa. Both these plants are great nitrogen gatherers, and being turned under season after season soon produce sufficient humus to



PICKING ORANGES.

This scene was photographed in a grove adjoining St. Cloud.

build up the land to the required fertility.

Ground should be well prepared before planting. During the first years of the young grove the ground may be plowed, not too deep, close up to the trees. Afterwards, when trees and roots have attained considerable size, plowing should be shallow, then abandoned in favor of the cultivator.

In Spring the cultivator should be used frequently, as our driest weather in Florida occurs during March, April, and May. As with other crops, it is best to cultivate after each shower of rain, as soon as the land can be worked. About the first of June our so-called rainy season commences, and soon after it is advisable to discontinue cultivation in the grove. If beggarweed has been planted it will thrive wonderfully during the Summer season, and should be cut at least once or twice for hay, or if humus is needed it should be allowed to remain on the ground.

In the Autumn a general cleaning should be given the grove, plowing under the beggarweed or other cover crop, leaving the ground in good condition for Winter, until cultivation commences again in the Spring. If the cover crop has been heavy and not cut during the Summer it will be found rather difficult to turn under; it will need to be smashed down and afterwards broken up with a cutaway harrow before plowing under.

## **Fertilizing.**

Years of experience and extensive experimentation with commercial fertilizers on Florida soils have convinced growers of citrus and other fruits that liberal fertilization pays well in this State. Some kinds of trees bear fruit even tho neglected, but the quality rapidly deteriorates, and the tree soon exhibits a lack of plant food.

Perhaps no kind of fruit responds so quickly to fertilization as the citrus fruits, and, moreover, they are greatly influenced by the kind of fertilizer used. Three elements—nitrogen, phosphoric acid, and potash—are essential for plant food, and for the proper maturing of fruits and vegetables. Fruit trees, being slow-growing plants, do not require quick-acting fertilizers, except possibly for forcing nursery stock.

While there is some difference of opinion on so important a subject as fertilization, most growers are agreed on essentials. Generally two and three applications are made each year, and 20 pounds or more of mixed fertilizer is applied at one time to each bearing tree, according to size. Orange groves are generally fertilized in June, October and February.

During the early growth of young trees nitrogen should, of course,

predominate: afterwards, less nitrogen and more potash. As the latter tends to harden the wood and also to sweeten the fruit, it is used in greater quantities during the later months of the season. Potash salts are obtained from the mines of Germany, and can be bought of dealers in this country in such forms as kainit, sylvinite, muriate of potash, high-grade and low-grade sulphate of potash.

So extensive has the fertilizer business become in Florida that State laws requiring strict adherence to formulas are rigorously enforced, with the result that only reliable firms are able to command the trade. Fertilizers can either be home mixed or bought already mixed from reliable dealers.

### **Propagation of Citrus Trees.**

Citrus trees may be propagated from the seed, by grafting, and budding. Formerly the first two methods were employed most extensively, but of late years budded trees are more popular, and it is generally conceded that budding is one of the most economical forms of artificial production. In November and December budwood is cut for Spring work. In March, when the bark slips easily, the buds are inserted, and skillful budders perform their work with great rapidity.

Various forms of grafting are still practiced, and should horticulturists of today be deprived of all forms of grafting and budding, fruit-growing as a commercial proposition would soon become obsolete.

Standard varieties of citrus fruits are propagated on several different kinds of stock. Perhaps the sour-orange stock is most commonly used, as it is considered hardier than any other. Trees budded upon it produce crops of fruit in from four to six years. The sweet orange stock is a favorite with many planters; it is hardy, makes rapid growth of wood and foliage, and bears fruit in four to six years. Trees budded on rough lemon and grapefruit stock are very tender, and should not be planted where there is danger from freezes. However, they make a vigorous growth and fruit in from three to five years.

Some nurserymen have strongly advised the use of citrus trifoliata as a stock for orange and grapefruit, thinking it would withstand zero weather without injury. It has not, however, met their expectations, and is entirely unsuitable for high pine lands.

### **Marketing the Fruit.**

Oranges as well as grapefruit and lemons begin to color up in Florida

during the month of October, and then the busy season for pickers and packers and shippers commences.

Mandarin oranges are packed in halfboxes, two of which are strapped together for shipment. Sweet oranges and pomelos are sized by machinery, while lemons and limes are sized by the eye. Fruit is cured in the packing house from two days to a week before packing, and shipped in two classes; viz, brights and russets.

Citrus fruits are packed according to size, sweet oranges running from 96 to 252 to the box, pomelos running from 28 to 96. Mandarin oranges pack 60 to 216, while lemons and limes run from 210 to 420 to the box. Kumquats are generally packed in quart baskets and shipped in strawberry carriers.

No one questions the superiority of the Florida orange, and when handled carefully from grove to car it commands the highest price in the market. Florida citrus fruit that is carefully wrapped in white tissue, well graded and packed need fear no competition in Northern or foreign markets. "Good fruit properly put up can be sold at any time," is an axiom that wise orange growers are ever mindful of, while inferior or badly packed fruit goes begging the world over.

In conclusion it may be said that notwithstanding some drawbacks connected with citrus culture, it is as fascinating an industry as can be found in the whole world. The acreage is steadily increasing thruout Florida, and groves now in full bearing are paying the owners handsome returns for expense and trouble involved.

