TO: COUNTY EXTENSION DIRECTORS AND AGENTS (VEGETABLES AND HORTICULTURE) AND OTHERS INTERESTED IN VEGETABLE CROPS IN FLORIDA

FROM: James M. Stephens, Associate Vegetable Crops Specialist

VEGETARIAN NEWSLETTER 74-7

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I. COMMERCIAL VEGETABLE PRODUCTION

A. Yield Potentials for Florida Vegetable Crops

We are often asked to help with feasibility studies that require estimates of production. In a situation such as this, we always resort to "average" yields. It has been said that an average producer of vegetables does not make a fair return on his investment of time and money. The reference, of course, is to the consistent, average producer and not to the person experiencing occasional failures.

Recognizing the fact that average yields can be somewhat meaningless, Dr. D. L. Brooke in his annual cost and returns analyses for selected vegetable crops has included ranges from low to high for six of the major items including yields. The ranges given for yields are quite revealing. Yields in the low range can be attributed to adverse conditions like weather, diseases, etc. However, the upper ranges of yields tell a story of not only cooperation from the weather, but an added factor of good management in production.

Going one step further, the Extension Specialists have been surveying county agents and growers in an attempt to determine record yields under commercial conditions for selected vegetables. These are presented (whenever available) together with ranges of yield of selected vegetables from the major producing areas in Florida. Presentation of these data gives vegetable growers an opportunity to compare his yields with others in his area and elsewhere in the State. Knowing the potentials, growers may wish to raise their sights to shoot for higher yields and to work actively to achieve that goal.

Ranges in Yield for Selected Vegetables

<table>
<thead>
<tr>
<th>Crop and Area</th>
<th>Yields 1972-73 Season</th>
<th>Record Yield (Several seasons)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Snap Beans (bushels)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Palm Beach</td>
<td>49</td>
<td>95</td>
</tr>
<tr>
<td>Pole Beans (bushels)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dade County</td>
<td>284</td>
<td>336</td>
</tr>
<tr>
<td>Cabbage (50 lb.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hastings</td>
<td>287</td>
<td>672</td>
</tr>
<tr>
<td>Sanford</td>
<td>351</td>
<td>974</td>
</tr>
<tr>
<td>Celery (crates)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central Florida</td>
<td>259</td>
<td>527</td>
</tr>
<tr>
<td>Everglades</td>
<td>471</td>
<td>777</td>
</tr>
<tr>
<td>Sweet Corn (crates)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>East Coast</td>
<td>183</td>
<td>240</td>
</tr>
<tr>
<td>Everglades</td>
<td>136</td>
<td>320</td>
</tr>
<tr>
<td>Zellwood</td>
<td>243</td>
<td>322</td>
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<tr>
<td>Cucumbers (bushels)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Immokalee</td>
<td>69</td>
<td>325</td>
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### Ranges in Yield for Selected Vegetables (Continued)

<table>
<thead>
<tr>
<th>Crop and Area</th>
<th>Yields 1972-73 Season</th>
<th>Record Yield (Several seasons)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Eggplant (bushels)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Palm Beach</td>
<td>286</td>
<td>974</td>
</tr>
<tr>
<td>Peppers (bushels)</td>
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<td></td>
</tr>
<tr>
<td>Immokalee-Lee</td>
<td>128</td>
<td>800</td>
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<tr>
<td>Palm Beach</td>
<td>218</td>
<td>896</td>
</tr>
<tr>
<td>Irish Potatoes (cwt.)</td>
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<td></td>
</tr>
<tr>
<td>Dade County</td>
<td>151</td>
<td>237</td>
</tr>
<tr>
<td>Hastings</td>
<td>112</td>
<td>247</td>
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<tr>
<td>Squash (bushels)</td>
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<td></td>
</tr>
<tr>
<td>Dade</td>
<td>125</td>
<td>170</td>
</tr>
<tr>
<td>Immokalee-Lee</td>
<td>99</td>
<td>200</td>
</tr>
<tr>
<td>Palm Beach</td>
<td>59</td>
<td>187</td>
</tr>
<tr>
<td>Tomatoes-ground (30 lb.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dade</td>
<td>176</td>
<td>450</td>
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<td>Fort Pierce</td>
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<tr>
<td>Immokalee-Lee</td>
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<td>600</td>
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<tr>
<td>Tomatoes-staked (30 lb.)</td>
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<td></td>
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<tr>
<td>East Coast</td>
<td>321</td>
<td>1619</td>
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<td>Immokalee-Lee</td>
<td>585</td>
<td>1140</td>
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<tr>
<td>Manatee-Ruskin</td>
<td>354</td>
<td>978</td>
</tr>
<tr>
<td>Watermelons (cwt.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Immokalee-Lee</td>
<td>181</td>
<td>452</td>
</tr>
</tbody>
</table>

Vegetable growers attending field days have heard reports often of experimental yields on certain crops which appeared at the time to be impossible to reach under commercial conditions. To their own amazement, many of these same growers did reach those yield levels within a very few years. The grower who produced 2,200 boxes of tomatoes recently would have never dreamed this was possible 10 or 15 years before. Knowing that certain yield levels have been attained experimentally or commercially should certainly serve as an incentive to every vegetable grower to set his sights toward that goal. To encourage incentive to attain higher than ever yields, we invite county extension agents, commercial representatives and growers to report to this office any commercial yields which they feel might be considered a record for Florida. This information can be made available periodically to the industry.

(Montelaro)

**B. Tomato Pinworm**

Information on tomato pinworm has previously appeared in this newsletter on identification and suggested controls the growers could use. The initial articles were brief and limited in scope because a great deal was not known about the insect.
Since these early articles, pinworm populations and economic damage have increased to the point where most tomato growers (and a number of eggplant and potato growers) have had experience with the pest.

Dr. S. L. Poe, entomologist at the Bradenton Agricultural Research and Education Center has recently co-authored a report with Dr. P. H. Everett, Professor, Agricultural Research Center, Immokalee, and Dr. J. Pat Crill, formerly Associate Professor, at the Bradenton facility. The report, Bradenton AREC Research Report GC-1974-8, is entitled "Observations of the Biology and Control of the Tomato Pinworm in Florida." The report is a summation of what has been noted about the pest during the last several seasons not only in experimental plots but also in commercial fields and plant production houses. A brief highlighting of the report follows.

The pinworm was known to occur in Florida, but did not become a serious problem until the 1972-73 season. What led to the sudden increase in the population? Dr. Poe writes, "The sudden population increase appears to be the result of altered cultural practices, intensified plant production and shifts in the nature of chemical toxicants used for insect control."

The report relates that the pinworm life cycle follows the pattern, egg to larva and climaxes in the pupa from which a new adult moth emerges. The authors report that during the larval portion of the cycle when the larva will molt several times as it grows in size, "The first stage of growth is spent as a leaf miner and the second stage usually as a leaf folder or tier. The third and remaining growth stage larva, however, may choose to enter the stem, vine, a new leaf fold or the tomato fruit." The entire cycle from egg to adult may require more than two months and is rarely completed in less than one month.

Insecticides at present are the only means of controlling an established pinworm population. Selection of the proper materials will depend on the situation and larval age, moreso than on the materials themselves. For that reason, two sets of recommendations have been established by Dr. Poe, one for seedling production and one for field production. The following outline was made of the discussions from the report.

Seedling Production
1. Where possible, screen plant production houses to keep out adult moths.
2. Eliminate nearby sources of pinworms.
   Destroy abandoned fields and fruit to prevent unchecked populations from spreading into other areas.
3. Destroy volunteer plants around the area which may harbor the insect and maintain weed-free conditions in and near plant production houses.
4. Hand picking and destruction of local infestations might be feasible.
5. Apply diazinon, endosulfon (Thiodon) or methomyl (Lannate, Nudrin) on a weekly schedule. "However, the best control was obtained with two applications each week, one of Thiodon and the other of diazinon." ... "The rationale for two applications per week is to provide a toxic residue at all times during the lengthy life cycle and continuous egg hatch to obtain mortality of newly hatched larvae."
Field Production
1. Infested fields can be successfully managed if the fruit can be protected from the larvae.
2. Weekly applications of one or two insecticides provided sufficient toxic residue on the foliage at all times to intercept the larva when it abandoned one feeding site in search of another.
3. Eradication of the population can be achieved if a weekly application schedule is rigidly followed and no reinfestation occurs.
4. None of the materials are effective on larva in their mines which gives them protection from the contact materials.
5. Adequate and thorough coverage must be obtained if success is wanted.
6. "Several chemical combinations which gave good control and have eradicated established infestations are diazinon + methomyl, endosulfan + phosvel, systox + phosvel, parathion + methomyl, and guthion + sevin."

The authors summarize their work by stating "Pinworm population control at the present time is contingent upon (1) sound sanitation practices, and (2) judicious use of conventional chemicals to maintain a lethal residue on the plants."

(Kostewicz*)

*Copies of the mimeo report can be obtained by writing Dr. S. L. Poe at the A.R.E.C Bradenton facility.

C. Seedling Survival Under Full-Bed Mulch Culture

The most serious problem experienced by growers of tomatoes, peppers, eggplants, etc., under full-bed mulch culture is the establishment of uniform stand. During the months of August, September and October, or any other time when the weather is hot and dry, excessive soluble salts at the surface of the exposed soil are apt to kill seedlings or injure them severely enough to reduce yield. Growers must learn to cope with the problem of "salt kill" of seedlings to be successful with the use of full-bed mulch culture for production of vegetables. Once seedlings have reached a certain stage of growth, the expanded root system and hardened stem withstand the high levels of soluble salts so damaging to plants in the earlier stages of growth.

An understanding of the factors contributing to plant injury from accumulation of excessive soluble salts at the seedling site of mulched beds permits the grower to take preventive and/or corrective measures as needed. The primary principle involved is that fertilizer and other salts move with soil water. Under full-bed mulch culture, soil water moves upward by capillary action to the exposed soil surface at seedling sites where it evaporates leaving soluble salts at or near the surface of the soil. The only exception to this general statement is the downward movement or leaching of fertilizer salts following a flooding rain.

The aim, therefore, in reducing seedling loss from high soluble salts is to prevent or reduce accumulation of excessive salts near the seedling. Following are factors contributing to salt accumulation at the exposed surface and suggestions on how these factors can be modified to avoid or lessen the effect to the extent that crops can be grown successfully.
(1) Environmental Conditions - Weather and environmental conditions favoring rapid evaporation also favor accumulation of soluble salts at the soil surface. These conditions are high temperature, bright sunshine, high winds or low humidity.

Where seedlings must be started during hot, dry, windy periods favoring rapid evaporation, growers can:
(a) Cover the black plastic with a white or aluminum paint to reflect some of the heat of sun rays.
(b) Irrigate to maintain moisture in plant bed as high as possible without saturating the soil.
(c) Supply sufficient water (as needed every two or three days) by hand, cart or overhead sprinkler (not necessary when one-quarter or more inches of rain falls) to wash the soluble salts down below the root zone from the surface of the exposed soil at the seedling site.
(d) Plant seed or place transplants in a hole 1.5 to 2.0 inches deep and 2 inches wide. Planted in this fashion, seedling roots and stems will not come in contact with the heavy accumulations of soluble salts found at the upper perimeter of the hole.

(2) Seedling Age - The smaller (or younger) a seedling is the more susceptible it is to soluble salt injury. Put another way, it takes less total soluble salts to kill a two-day old seedling than it takes to kill one several days older.

The most critical period is that of germination and early seedling development. Under high evaporative conditions, seedlings may have to be top-watered as often as every two or three days. Transplants are less susceptible to injury than direct-seeded crops. Growers using transplants would be wise to let them size up as much as possible consistent with ease of handling with mechanical transplanters.

(3) Salt Movement - Salts move in soil water which in turn moves by capillarity to the highest point in the bed and to exposed surfaces where it evaporates. Reciprocally, salts move downward when water moves in that direction under the force of gravity.

Since salt moves to the highest point in a plant bed (it also moves to the exposed surface where water evaporates from the soil), it is suggested that single-row crops be planted on flat-top plant beds. Two-row crops such as pepper should be planted on a center-crown bed.

(4) Quality of Irrigation Water - Soluble salts (primarily sodium and chlorides) found in irrigation water can contribute significantly to total soluble salt concentration in soil. When it evaporates, irrigation water leaves its dissolved salts in the soil.

Water to be used for irrigation should be as low as possible in total soluble salts. Simple and inexpensive lab tests are available for the determination of water quality. Water with less than
300 ppm total soluble salts can be considered good for irrigation. The higher the level of salts in water, the less desirable it is for irrigation. Water containing a 1000 ppm soluble salt can be used only with difficulty.

(5) Method of Irrigation - Sub-surface irrigation tends to concentrate soluble salts at the surface of the soils from which water evaporates.

Sub-surface irrigation, although simple and inexpensive to use, has the disadvantage of contributing significantly to soluble salt accumulation at the soil surface. No suggestions can be made to eliminate this disadvantage completely; however, good management of the system combined with other suggestions made in this report will tend to offset most of the problems inherent in the system.

(6) Amount and Uniformity of Soil Moisture Distribution - The concentration of soluble salts in any given spot in the soil of a plant bed is inversely proportional to amount of soil water present. For example, a 50% drop in soil moisture from field capacity, results in a doubling of total soluble salts.

Maximum efficiency of fertilizer use and best plant growth can be obtained only by good distribution of moisture throughout the effective root zone of the plant bed. To obtain this: (a) soil must be uniform in topography and tilth, (b) the beds must be uniform in height and adequately pressed, and (c) irrigation and drainage ditches designed to deliver or remove water rapidly and uniformly.

(7) Amount of Fertilizer - Soluble fertilizers are salts which enter into the total soluble salt complex of the soil and, therefore, increase concentration of these salts in the soil solution in proportion, generally, to the amount added.

Use of more fertilizer than necessary to produce a crop is not only wasteful of materials and money, but it increases the hazards of soluble salt injury to the crop. The exact amount to use is hard to determine, but there are good guidelines available to help growers with the problem. Dr. Paul Everett, after several seasons testing fertilizer rates, has come up with the following rules of thumb for tomatoes.

(a) Ground (unstaked) culture - 1 or 2 pickings as mature-green: 120-150 lb N/acre.
(b) Stake culture - 4 to 5 pickings as mature-green: 200-250 lb N/acre.
(c) Stake culture - 15 or more pickings as vine-ripe: 300-350 lb N/acre.

Potassium (K₂O), in most cases, can be applied at 1.5 to 2 times the amount of nitrogen. The rate of phosphorus should be determined from soil test and previous crop history.

Dr. Everett recommends soil testing to determine needs for phosphorus. Growers should increase or decrease rates of N and K depending
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on cover crop, residual from previous crop, etc. The principle of determining rate of fertilization based on length of growing season can be used for other crops.

(8) Sources of Fertilizers - Solubility of the sources of fertilizer used determines the amount of "salts" added to the soil. This is often referred to as "salt index." It is a relative comparison to sodium nitrate which is assumed to have a salt-index of 100.

The most desirable materials for fertilization of vegetable crops from the standpoint of soluble salt problems are the "low salt-index" materials. These are the materials that contribute least to soil soluble salt increase per unit of plant food material applied. For example, a unit each of N and K from a potassium nitrate source will increase soluble salts to a lesser extent than if supplied from a combination of sodium nitrate plus potassium chloride.

(9) Placement of Fertilizers - Rapidity of movement of soluble salts to exposed area (seedling site) of a full-mulched bed is, in part, determined by placement of the fertilizer materials.

Research is continuing on the best placement for fertilizer under full-bed mulch culture. There are several placements which have been shown to work satisfactorily by researchers and growers as well. A placement which appears to be gaining favor is: (a) placing a starter fertilizer (4-8-8 at 500 lbs. or equivalent amount from other materials) either (1) broadcast and disked into the soil prior to bed-shaping or (2) placing the starter fertilizer on a false bed in 30-inch band and covering with at least 3 inches of soil, and (b) placing the balance of the fertilizer (1) in two side bands on soil surface at least 9 inches from the plants on a single-row crop like tomatoes, or (2) in one band on soil surface in the middle of a two-row crop like pepper.

One other aspect of salt injury that should be mentioned here is the effect of soil flooding at later stages of growth. Fertilizer placed on the surface or reaching there by the upward movement of water can be leached downward only when free water reaches it from flooding conditions. Upon receding, heavy concentration of salts can be moved down into the root zone where they can cause severe injury. A drainage system designed to move excess water as rapidly as possible from a full-bed mulched field is absolutely necessary to avoid loss of a crop during periods of heavy rains.

(Montelaro)

D. Index for 1973-74 Vegetarian Newsletters

We consider our production season for vegetables to be from July 1 to June 30. With this, the first issue of the new production season, we are enclosing an index for the twelve monthly issues of the past season (July 1, 1973 to June 30, 1974).

County Extension Agents wishing to maintain a reference file of the Vegetarian Newsletter should place last season's issues in a folder together with the index. When needed, it is a simple matter to check each annual folder for the material desired.
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There are on file in this office indexes for the 1971-72 and 1972-73 seasons as well as a "catch-all" index for the more important articles spanning from the early fifties to 1971. These are available upon request from this office.

(Montelaro)

II. HARVESTING AND HANDLING

A. Shipping Containers - Labeling

This section of the Vegetarian has previously emphasized containers and standardization of size, shape, and volume. In this issue we would like to emphasize standardized container labeling. Time and handling are very important in the cost and quality of fresh vegetables. Both of these items come into play when a commodity is misrouted due to mistaken identity. Many of the people handling produce at the warehouse level are not well acquainted with many of the commodities they handle and even if they were experts, they cannot afford the time to examine each package. What about containers? Do they give all the required information about what is inside or is most of the space devoted to trademark and brand name? Remember most consumers never see the container and the buyer will know whom he purchased from. At the warehouse level the important thing is to know what is in the box—not who put it there.

The following are recommendations on container labeling as set forth by the Produce Marketing Association's Container Committee.

1. 65% of the space of at least two sides, preferably four sides, of all shipping containers used for product identification information. The remaining 35% used for brand name, shipper and address. Pictorial illustrations should be de-emphasized in order to present clear, easy-to-read containers that provide only information pertinent to the product in the container.

2. Size and/or count information, when required, should always be placed in the upper left corner. Variety information, when required, should always be placed in the upper right corner. The recommended placement of other product identification facts may be found in the several examples prepared by the PMA Retailer Division Container Committee.

3. Minimum lettering sizes are recommended for all product identification items, depending upon container size:

CONTAINERS LESS THAN 5 INCHES DEEP

Size/count, variety - 1/2" minimum
Origin - no minimum
Commodity - 1/2" minimum
Weight, grade - 1/4" minimum

CONTAINERS FROM 5" TO 7" DEEP

Size/count, variety - 3/4" minimum
Origin - no minimum
Commodity - 3/4" minimum
Weight, grade - 1/2" minimum
III. VEGETABLE GARDENING

A. Timely Gardening Topics

These questions and answers are suggested for your use in developing periodic (weekly) radio or newspaper briefs. They are based on letters of inquiry from Florida gardeners.

(1) Timely Topic for week of July 14-20.

Question

What could be causing some of the seeds in my butter bean pods not to develop properly?

Reply

Uneven pod fill-out is a common problem on lima beans in Florida, especially in the summertime. One likely cause for missing beans in an otherwise normal bean pod is a yeast spot disease called seed pitting. It is spread by the southern green stinkbug. This insect stings the seed through the pod and sucks out the juices. The stinkbug may secrete other toxins into the seed causing it to shrivel and abort, if injured before the seed is half grown. If the puncture comes after the seed is half grown, it becomes malformed with numerous dark sunken areas on the seed coats.

In addition to insect injury, the usual explanation is to call it an environmentally induced physiological disorder. Environmental stress, such as drought and extreme high temperatures, occurring at fruit setting time can contribute to the disorder.

(2) Timely Topic for week of July 21-27.

Question

I am an amateur gardener and would like your honest opinion on how successful I might be with hydroponic gardening?

Reply

While hydroponics can be a lot of fun to try, it should be considered a hobby that involves difficult procedures. It is not as easy as merely following a recipe of chemicals, for the plants nutrient demands change rapidly as growing conditions change. Soil usually helps compensate for these changes, but with soil-less culture, it is left up to the grower's skill to see that chemical adjustments are made as needed.
Therefore, to be highly successful with it, a person needs to be fairly well-trained technically in order to arrive at and maintain the nutritional needs of the plants under hydroponic culture. Furthermore, since specialized equipment is involved, don't overlook the expense factor.

(3) Timely Topic for week of July 28-August 3.

Question

How do I keep the birds from harvesting my tomatoes and strawberries before I do?

Reply

A physical barrier, such as bird netting, is the most effective method of protecting your garden from birds. Bird netting may be found in many local garden supply stores. If you have trouble locating it, contact one of the following companies: (1) Animal Repellants, Inc., Griffin, Georgia 30223; (2) Safety and Industrial Net Co., Dept. B, East Hampton, Connecticut 06424; (3) Fred H. Howe, Box 267, Somerville, New Jersey 08876.

Other devices used to varying degrees of success by gardeners are fake owls, scarecrows, rattling aluminum pie pans hanging from string, and repellants.

(4) Timely Topic for week of August 4-10.

Question

I thought all tomatoes were red when ripe, until recently I saw what looks like yellow tomatoes. Do tomatoes come in different colors?

Reply

While most commonly preferred tomatoe fruits are red when ripe, several other colors are possible. The different colors and shades of the fruits are due to different combinations of genes. Red tomatoes have red flesh under yellow peel; pink tomatoes have red flesh under colorless peel; dark yellow tomatoes have yellow flesh under yellow peel; pale yellow or lemon tomatoes have yellow flesh under colorless peel; white tomatoes have very pale yellow flesh under a colorless peel.

(5) Timely Topic for week of August 11-17.

Question

What insects will marigolds repel from my garden?

Reply

Marigolds do not actually repel insects or other pests from adjacent plants. It probably gets this reputation due to its demonstrated relationship with nematodes. This flowering plant is not a host for the root knot nematode, one of the most serious pests we encounter on vegetables. In practical terms, this means a gardener could grow
marigolds as a cover crop in his garden plot as a control measure for root knot nematodes. Since the root knot nematode would be without a plant to live on, populations in time could be reduced.

(Stephens)

B. Know Your Vegetables - Casaba Melon

The Casaba Melon (Cucumis melo Var. inodorus) belongs to a group of melons called winter melons, which also includes the Honey Dew type. They are closely related to netted melons which we commonly call cantaloupes (Cucumis melo Var. reticulatus). All the melons within the melo species are known as muskmelons.

The Casaba is a native of Asia minor. Most commercial production of Casabas is located in the Southwestern U.S., particularly California. In Florida it is grown only in home gardens, and not often even there. The main drawbacks in this state are that it is late maturing (120 days), which makes it ripen in our hot, wet months of early summer. Since it is susceptible to leaf diseases, most gardeners have poor luck with it, although a few have been fairly successful.

The Casaba melon grows on a vine similar to a cantaloupe. While about the same size, fruits are not netted like the cantaloupes, nor smooth like the Honey Dews. Instead, they are profusely marked with deep wrinkles (longitudinal corrugations). Skin color varies with the variety. Golden Beauty fruits are pointed at the stem end, with green skin that turns to yellow at maturity. The Crenshaw variety produces a slightly wrinkled, dark green fruit that turns pale yellow-tan at maturity. Winter Pineapple is light green even when mature. Santa Claus is much longer than thick (almost cylindrical), fairly smooth-skinned, and colored with blotches of black and yellow.

Flesh of Casabas is usually thick, and either white, yellow or orange colored. Although sweet flavored, as a rule the flesh is not as sweet as a Honey Dew. Casabas do not have the musky odor and flavor of the cantaloupes. Fruits do not "slip" from the vine at maturity; rather they are harvested by cutting the stem when the melons are reasonably mature and held in storage until the blossom end becomes soft.

In Florida, culture would be the same as for cantaloupes. Time of planting would be similar (February - March), although maturity would be later. A good fungicide spray program is encouraged since leaf diseases are to be expected.

(Stephens)