

Okra is a crop particularly well suited to farmers who can give it special attention during the summer months and can harvest the small, tender pods frequently. Special strains for processing are currently being developed.

Southern peas or Cowpeas, are also well suited to the grower with adequate labor during the summer months. The green-mature pods are harvested, to be shelled mechanically before processing. Cowpea pod weevil or

curculio is controlled by scheduled insecticide applications, according to the state entomologist or county agent.

In conclusion, a wide variety of vegetables are grown in Florida for fresh market. A number of these do lend themselves to canning or freezing. These crops offer definite possibilities to greatly expand production for processing. This additional outlet would help to diversify and stabilize the vegetable market.

THE PACKAGING OF FLORIDA VEGETABLES

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In the 1954-55 season over 62 million containers were used shipping the Florida fresh vegetable crop. These containers may be divided into three principal types or classes: (1) crates and boxes; (2) baskets and hampers; (3) sacks such as burlap, cotton, paper, mesh and polyethylene. Through a combination of trial and error, along with research and experience, the best method to handle and package these vegetables in order to insure safe arrival and quality has been perfected. Apparently there is still room for improvement as according to the Freight Claim Division of the Association of American Railroads over 11 million dollars in 1954 and over 14 million dollars in 1953 were paid on claims for vegetables transported by the railroads. These claims, of course, include a certain amount of mishandling and delayed deliveries by the railroads, but they do stress the importance of each carload of vegetables being properly harvested, processed, crated, loaded and serviced with the right refrigeration.

The process of preparing and packaging vegetables may occur either on a farm, in a packing house or on a mobile packing house. The basic processing principles involved in a packing house or mobile packing house are sufficiently similar to be considered as one basic type. For example, there is very little actual difference in the cutting, washing, grading and packing of celery in a wash house as compared to a mobile harvester, which is

in reality a packing house on wheels. The same steps occur whether the operation is performed on a mobile packing house or in a permanent wash house. Farm packing of vegetables usually requires the minimum in equipment, labor and investment, when compared to the normal packing house operation. The Pompano area is a good example of this type of operation whereby the vegetables are usually graded and packaged in the field without going through a packing house. The relative merits of one type over the other depends to a large degree on the kind of vegetable being produced and the area of production. Celery, tomatoes, sweet corn, potatoes, cucumbers and radishes are almost always processed and packaged through a packing house type operation with the balance of the vegetables being handled in either manner.

Any preparation for market and packaging operation is an attempt by the grower or shipper to insure and preserve for the ultimate consumer the same approximate quality and condition of the vegetable as found during harvest. To accomplish this may require a combination of rapid harvesting, careful handling, washing, waxing, precooling, lined containers, padded grading equipment, proper loading and speedy transportation to market. One fact is certain, a vegetable is on the down grade in quality and condition from the moment it is harvested. It is the responsibility of the grower and shipper to establish such environmental conditions as will reduce this rate of deterioration to a minimum. Under pathological conditions every ingenuity and skill is needed by the farmer in this struggle. Definite techniques are used such as the application of chlorine in the precooling water

to reduce losses from rots, washed potatoes being heat dried to eliminate bacteria soft rot, ordering of preiced refrigerator cars to assure low loading temperatures within the car and the use of top (snow) ice on the loaded vegetables.

Sweet corn, undoubtedly, loses one quality item, sugar, more rapidly than other vegetables lose quality factors. Most growers and shippers realize for sweet corn to maintain quality requires rapid harvest when the corn is at the right stage of maturity, adequate precooling and proper refrigeration service in transit. A definite correlation exists between poor eating quality of sweet corn and loss of sugar. Research has disclosed as much sugar in corn is lost in 3 or 4 hours at about 85 degrees as is lost in 4 days at 32 degrees. Thus the necessity for avoiding delay between harvesting and precooling is apparent to most corn handlers. To use the term "precooling" in this discussion without a general definition may create some confusion and misunderstanding. To define precooling as "the quick removal of field heat from a commodity to a level safe for transit temperatures" eliminates all malpractices of precooling caused either by deception or ignorance.

Tomatoes are a crop requiring to be picked at the proper stage of maturity to insure prompt ripening and good quality. This very problem, maturity, has been one of the factors contributing to the recent interest in a vine-ripened tomato deal in Florida as any tomato showing color break has definitely reached the proper stage of maturity while a green tomato may or may not have reached the best stage of development for picking. The trend in Florida has been away from the 30 pound lug to wooden and fiberboard containers holding from 40 to 60 pounds of jumbled packed, unwrapped tomatoes. The vine-ripened or "pink" tomato deal has not standardized on any certain container as 8, 10, and 20 pound fiberboard and wood single and double layer containers are used. Tomatoes require careful picking and handling

as they are extremely susceptible to damage. Mature green tomatoes are subject to chilling injury, characterized by retarded ripening, alternaria rot and uneven color. Only enough refrigeration is needed to cool the tomatoes to 60 or 65 degrees and then to maintain them at temperatures somewhere in the range of 50 to 65 degrees in transit.

Polyethylene is not used to package vegetables in Florida to any great extent. Topped radishes are packaged in 6 or 8 ounce polyethylene bags and then packaged 30 or 48 bags to a master container but this is the only commodity in Florida using polyethylene to any degree at the present time. There have been some efforts to package new potatoes in 5 and 10 pound polyethylene bags but such is not a general practice. Bushel baskets and hampers continue to remain standards within the vegetable industry. Beans, peppers, field peas, squash, okra, cucumbers, eggplant and leaf crops still rely strongly upon these containers. Wirebound crates are used extensively with celery, sweet corn, cabbage, tomatoes, radishes, and certain of the leaf crops such as Chinese cabbage and endive. Fiberboard is used to some degree by tomato and cucumber shippers as well as by ice box melon producers. The 50 and 100 pound paper and burlap sack still remains the key containers used in the potato industry.

The ultimate in a vegetable container would be one extremely inexpensive, light in weight yet capable of withstanding abuse and rough treatment, easy to assemble and load yet one causing little or no box rub, pressure bruise or crushing damage to the vegetable, and completely acceptable by all shippers, receivers, distributors and retailers. Any container so designed would still be confronted with the problem of when a "good pack" becomes an "excessive bulge pack" motivated as a sales advantage. Florida vegetable growers have shown their receptiveness to container changes so it can easily be predicted that if a better mouse trap is created the Florida grower will adopt its use.