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

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I. COMMERCIAL VEGETABLE PRODUCTION

A. Growing Green Bunching and Dry Bulb Onions

Growing of onions continues to interest many people in Florida judging by the number of requests for information received. Onions can be grown for green onions (spring onions, fresh onions, or bunching onions are other names used) or for dry bulb onions on most soils and in most areas of Florida. Production problems do exist but sound growing techniques and programs coupled with a basic understanding of how onions grow can yield good results.

One of the key physiological factors of onion growth is the combined response to day length and temperature. This interaction plays a role in flowering, seedstalk formation and bulb formation, but our discussion will be limited to bulb formation. As one could guess from our mention of day length (photoperiod), there are short-day and long-day onions. Long-day onions are those varieties requiring a long-day length to start the bulb formation process. These onions, if kept under short-day conditions similar to the winter production period in Florida, do not form bulbs but remain straight as green onions. The onion varieties grown in the northern part of the United States are long-day varieties. They are planted in the relatively short days of spring, grow vigorously and form bulbs under the lengthening days of summer. The short-day onion varieties are those that grow and bulb under the short-day conditions found in Florida and other southern states. Thus, only short-day onion varieties should be grown in Florida if bulbing types are wanted. The long-day types, however, can be used for green onion production because they will not form bulbs but produce a long straight onion.

Generally, the commercial onion crop is planted by direct seeding, the use of transplants or the use of sets. All three are proven methods of starting a crop. Seeding obviously is the easiest from the standpoint of labor input and cost involved. On the other end of the scale, sets and transplants require a high labor input and cost, but require a shorter season following planting. All three methods can be used for green onions or dry bulb production. Many people mistakenly believe that sets can only be used for green onion production.

Extension Circular 1768, "Onion Production Guide," contains details on producing onions by means of seed or transplants. The subject of sets, however, is only briefly mentioned. Some interest has been expressed in the production of sets both "for sale" and for use of the grower for his commercial production.

The sets sold in trade channels are small onion bulbs which are less than 1 inch in diameter. Generally, the 1/2 to 3/4 inch size range is called medium with large and small categories for those above and below this range. The cultural requirements in terms of fertilizers, pesticides, etc., for growing sets are similar to dry bulb onion production. However, the critical distinction is in the spacing of the seed in the soil. The onions are planted thickly so that they are restricted in diameter as they grow. There are many ways to achieve the desired thick planting arrangement. Wide solid planted beds, groups of closely (1") spaced rows, or a 3 to 6" band of thickly sowed seed with 10-12" between bands are examples of arrangements that can be used. The system used will depend upon what the grower has to work with. The main point is to keep the onions crowded together so that they do not size up over the 1" level.
When the onions for sets have reached the right size and are ready for harvest, they are usually undercut to facilitate gathering and to start the drying and curing processes. Usually, the tops are not very large so very little or no topping has to be done. However, the sets do have to be dried or cured and stored similarly to large dry bulb onions. These and other production guidelines are given in Circular 176 mentioned previously.

(Kostewicz)

B. Double-Cropping on Full-Bed Mulch

About twenty thousand acres of tomatoes, pepper, eggplant, strawberries and other vegetable crops are being grown presently under full-bed mulch culture in Florida. Within the past year, prices paid for plastic mulch have increased significantly and the supply has been rather tight. This situation is apt to continue in the future.

With increasing frequency, vegetable growers are asking if they can plant a second crop successfully on plastic-covered fields. The answer is conditional—no, if the job is done crudely, but yes, if the grower follows these few, simple steps.

(1) Do a good job of laying down and securing the plastic initially.

(2) Take care to keep the plastic from being ripped by equipment and laborers.

(3) Be sure that an adequate and balanced supply of fertilizer remains at the end of the first crop to grow a second crop.

(4) At end of harvest, spray the crop thoroughly to reduce or eliminate insect and disease infestations, which might otherwise attack the succeeding crop.

(5) Mow off or roto-beat first crop to destroy plants as completely as possible.

(6) Whenever practical, plant a vegetable for the second crop which is not closely related to the first. Follow tomatoes, eggplant and pepper with squash or cucumbers to avoid serious insect problems on the second crop.

(7) Plant second crop in new holes cut in plastic cover.

A haphazard approach to double-cropping on plastic mulch can easily result in failure of the second. On the other hand, growers who plan in advance and do a good, thorough job of double-cropping can make it succeed.

(Montelaro)

C. Destroying Abandoned Vegetable Crops for Sanitation

In our mad rush to accept the new and exotic things for vegetable production, we tend to forget how valuable some of the old, simple production practices can be. Three of the most important are: (1) prompt destruction of abandoned crops for purposes of sanitation, (2) crop rotation, and (3) cover cropping. This article will
deal with the first since many vegetable crops abandoned in late spring and early
summer are left undisturbed for months on end. Those old, abandoned vegetable
fields serve as reservoirs for many insects and diseases caused by fungi, bacteria
and viruses.

Research and field observations point to specific problems in vegetable pro-
duction which can, in some way, be associated with poor sanitation practices on
the farm. These include such disease and insect pests as: (1) virus mosaic in
lettuce, (2) bacterial basal ear-rot in sweet corn, (3) a strain of watermelon mosaic
virus on the vine crops, and (4) pinworms on tomatoes and eggplant.

Good sanitation not only includes prompt destruction of abandoned crops, but
destruction of pest harboring weeds, packinghouse waste and volunteer plants around
greenhouses, border areas and ditchbanks as well. Fields of tomatoes and eggplants
left abandoned with nightshade weeds growing unabated in them and the surrounding
area are certain to cause problems for subsequent crops grown in the vicinity.
Field sanitation is important, therefore, even on leased land which may not be cropped
by the same grower the following season.

The common sanitation practices discussed above are not expensive to carry
out. Properly done, they can return many times their cost from savings in pest con-
trol and increased yields in subsequent crops. With all other production costs
rising rapidly, growers no longer can afford to disregard the simple and inexpensive
practices of field sanitation in production of vegetable crops.

(Montelaro)

II. HARVESTING AND HANDLING

A. Postharvest - Cabbage

Cabbage is usually considered as a "hardware" type vegetable. While it is
ture that cabbage will take much rougher handling than some of the more perishable
commodities and still be salable, abuse or mishandling still causes losses that
range from minor to very substantial. A large percentage of the losses may be pre-
vented by using proper methods of harvesting and handling.

Maturity - Heads should be firm and mature when harvested. Mature heads are
of better quality and do not deteriorate as rapidly as soft, immature ones. This
means that when immature heads are harvested, a poor quality cabbage with a short
shelf life is placed on the market. In addition, the lost tonnage of salable cabbage
due to the light weight of the heads can result in considerable monetary loss to
the grower. On the other hand, heads which are over-mature may require excessive
trimming. The old (over-mature) heads also become brittle which results in more
damage during the harvesting, packing, marketing chain.

Harvesting - Whether the harvesting is done by hand, machine or any combina-
tion of the two, care should be taken to minimize damage. Where possible, the heads
should be placed and not thrown. Drops from conveyor belts (or by hand) should be
kept to a minimum. If harvesting by hand, the first grading operation should be done
in the field during cutting to eliminate decaying heads that can contaminate healthy
heads.
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Packing - The three most common containers for cabbage are wirebound crates, mesh sacks, and fiberboard cartons. The actual packing may be done in the field as the heads are cut, at a packinghouse, or at a field packing station. Both the containers and the method of packing will depend on the particular operation. However, it should be kept in mind that the mesh sack offers no protection for the cabbage. A wirebound crate that is over-filled will cause damage (puncture as well as bruise). A fiberboard carton will not damage the cabbage, but its ability to protect the commodity is negated if the carton is over-filled. Both the wirebound and the fiberboard containers will do a good job if properly used.

Precooling - Particularly when harvesting during warm weather, it is desirable to quickly remove the field heat from the cabbage. This greatly reduces the respiration rate which means that the cabbage is not using up its stored reserves (carbohydrates) in order to maintain itself. In addition, the growth of any decay organisms which are present is also greatly curtailed. Any of the three major methods of precooling (hydrocooling, vacuum or forced air) may be used for cabbage. If fiberboard containers are used in conjunction with hydrocooling, waterproof cartons are essential. In areas where precooling facilities are not available and where the cabbage is being transported immediately, it may be desirable to top-ice the load and then wet it down to move cold water down through the load and remove some of the heat. Re-icing may be necessary.

Storage/Transport - Cabbage freezes at a rather high temperature (@ 30-31°F). Although slight freezing may not cause any noticeable problem, it can (depending on severity) predispose the cabbage to secondary decay infections. The storage/transport temperature of cabbage should be as near 32°F as possible with a relative humidity of about 95%. The high humidity reduces water loss and keeps the cabbage in a healthier state and more resistant to decay organisms.

(Hicks)

III. VEGETABLE GARDENING

A. Timely Gardening Topics

These questions and answers may be useful as material for weekly newspaper or radio shorts. They are based on actual letters received from gardeners around the State.

(1) Timely Topic for week of April 11-17.

Question

Is it true that I can now use my food stamps to buy vegetable seeds and plants?

Reply

Recent amendments to the Food Stamp Act of 1964 do permit the purchase of vegetable seeds and plants with food coupons. However, you may use your stamps only in grocery stores who are now participating in the Food Stamp program.

(2) Timely Topic for week of April 18-24.
Question

A soil test of my home garden last year showed that the land was alkaline, so I applied sulphur. Since my crops grew better, I would like to apply sulphur again. Should I do so without going through the details of a soil test again?

Reply

Since your soil tested alkaline, the application of sulphur probably was beneficial as you observed. However, the continued use of sulphur could create as many problems in the opposite acid direction. Therefore, the "details of more soil tests" could save you trouble by letting you know when you have the soil in the right balance.

(3) Timely Topic for week of April 25-May 1.

Question

In my last two gardens, I have had very little trouble with insects. I attribute this to my neighbor's chickens which I often saw wandering through our garden. Since the family moved away taking their chickens, I am thinking of raising chickens as an "insecticide" for my garden. Do you think this is a good idea?

Reply

Although chickens include worms and bugs in their diet, I'm not sure they could keep a garden clean, especially since many insects are concealed down inside the leaves and foliage. Furthermore, in attempting to pick a worm off a leaf, the chicken might get a taste of your greens--and want more. Greens such as collards are often relished by chickens.

(4) Timely Topic for week of May 2-8.

Question

I think perhaps I have part of my garden planted over an old septic tank. Will this harm my plants or my family?

Reply

Pollution dangers or problems to you and your family are not likely, especially if your root crops are thoroughly washed before cooking and eating. You probably have noted lush vegetative growth in that area. Problems could occur, especially with tomatoes, since excessive nitrogen contributes to reduced fruit-set. Otherwise, this spot may prove to be quite productive.

(5) Timely Topic (Bonus - good any time).

Question

I am appalled at how sandy my soil here in Florida is. Can I grow a vegetable garden in such sandy soil?
Reply

Sandy soil certainly does prove difficult at times, but a good garden can be grown with the proper management of the soil. It generally takes a lot of fertilizer and a lot of water, both applied in the proper place and at the right time. Organic materials, such as compost and animal manures, improve such soils, making gardening them easier, but are not absolutely necessary.

(Stephens)

B. Know Your Vegetables - Waterchestnut

Chinese waterchestnut (Eleocharis dulcis) is also known as waternut, horse's hoof, matai, hon matai, kweilin matai, pi chi, pi tsi, sui matai, and kuro-kuwai. It is a rush-like plant grown in ponds for its round corms or tubers, whose chestnut-brown skin color together with the chestnutty flavor and texture of the white flesh, give rise to the name "waterchestnut."

Waterchestnuts are seldom grown in Florida and the rest of the U. S., although limited attempts have been made in California and Hawaii. It is an important crop in China and is imported to the U. S. to be used as a delicacy in Chinese cookery.

The plants resemble other sedges with numerous upright tubular stems 3 to 5 feet tall. Roots and lateral rhizomes grow from each plant, these underground rhizomes then produce other plants and the edible corms. In size and form, the corms resemble gladiolus bulbs, being round, vertically compressed, with firm, crisp white interior flesh.

Growing conditions for waterchestnuts as an annual crop must include controlled irrigation and a warm temperate region of 220 frost-free days. It is not a crop for swamp lands or marshlands, unless such lands have ditches and dikes to control water levels. About 4 to 6 inches of water over the entire field usually is maintained.

For permanent planting, corms are placed 4 to 5 inches deep in the soil and 30 inches apart in similarly spaced rows. After planting, the plot is flooded and kept submerged for a day, then the water allowed to drain naturally to settle the soil and establish the young plants. When plants are 12 inches high, the area is flooded again for the remainder of the season. Under favorable conditions, plants develop rapidly and in 6 to 8 weeks, secondary plants will begin to appear around the parent plant. After growing throughout the summer, the corms reach edible size in late fall. Water is drained from the area about 30 days before harvest.

(Stephens)