The VEGETARIAN Newsletter

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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. Copper Accumulations in Florida Soils

Florida's vegetable soils are valuable resources that must be managed with extreme care in order to keep them productive for the immediate future and for generations to come.

One area of concern among professional agriculturists in Florida is the rapid accumulations of high levels of copper in some of our soils. This is especially true where copper is used regularly as a fungicide to control bacterial diseases on certain vegetable crops. It is not uncommon for some of our vegetable soils to receive from 25 to 50 pounds of copper annually from fungicide applications alone.

History has shown us in Florida what can happen to these soils when too much copper is added. The sandy soils in the Sanford area now contain hundreds of pounds of copper per acre accumulated over the years from the use of Bordeaux mixture (copper sulfate + lime) for control of celery diseases. Copper, in excess amounts, can injure crops by: (1) damaging the root system, and (2) causing an unbalance or deficiency of other heavy metals, especially iron.

The most frightening aspect of heavy accumulations of copper in our vegetable soils is the fact that once developed the problem appears to be permanent. Copper may persist for many years, as we have no way of removing it from the soil. In such a situation, the only alternative left is to modify cultural practices to lessen the injurious effect of high copper levels. For example, high-copper soils must be limed heavily to reduce solubility of soil copper. In addition, the crops produced on these soils may require higher-than-normal application rates of zinc, iron and manganese to maintain a balance of the heavy metals in the plant. Not only are these practices imperfect, but they add to the cost of production.

The best advice that can be given to vegetable growers is to use copper as sparingly as possible. This includes both the copper used in fungicides and as a minor element addition to fertilizers. In fact, no copper should be added to fertilizers to be used on soils with an adequate residual of the element. Periodic soil tests can be valuable tools in determining copper levels in soils. A grower noting increasing levels of this element over the years should take preventive action to keep the problem of excess copper from intensifying.

(Montelaro)

B. Pesticides Must Be Approved For Use By EPA

Florida vegetable growers are to be commended for diligence and common sense in the use of pesticides over the twenty-year period of tight government regulations. The industry has avoided any major confrontation with EPA and as a consequence, growers have not lost any significant amount of vegetables in the field or in transit. That danger, however, is ever-present. With the continual loss of valuable and proven pesticides, shortages, high cost, etc., growers may be tempted to use unapproved pesticides.

Everyone serving the grower should make a special effort to see that we do not relax our standards in the use of pesticides in this multi-million dollar industry. We are speaking here of the researcher, extension man, technical
representative, salesman, and anyone else who professionally contacts vegetable growers from day to day. These people can serve to remind the grower of the need to use only approved pesticides and more importantly to warn him if there are indications of violations.

Unless we continue to perform as we have in the past, we are apt to find ourselves in a very disastrous situation. It would not only hurt those caught for the specific incident, but it would cast a bad image on the whole vegetable deal in Florida.

We urge, therefore, that growers use nothing but approved pesticides for each and every vegetable crop produced in Florida. In the long run, everyone in the industry stands to gain by continuing to follow this policy which has been successful for twenty years.

(Montelaro)

C. Some Cultural Methods for Weed Control

Many growers are finding that some herbicides are in short supply this year. The availability of quite a few pesticides in general is unpredictable and to further complicate the picture, several have been discontinued by the manufacturers. Only the existing stocks of these will be available to growers. This combination of factors has resulted in rekindling grower interest in non-chemical methods of weed control. A brief review of some of the basic principles of several widely applicable methods appears to be in order.

A typical textbook on weed control methods lists (1) hand pulling, (2) hoeing, (3) tillage, (4) mowing, (5) flooding, (6) burning, and (7) mulching as cultural tools applicable to a weed control program.

Hand pulling and hoeing can be described best as hard, dirty and expensive, but these methods are still used to a limited extent in vegetable production. These have merit especially when employed to combat scattered infestations of particularly hard-to-control weeds. In this way, the further spread and increase in the problem can be avoided.

Mowing is used to control weeds in non-crop areas adjacent to vegetable fields. These areas would include fence rows, ditchbanks, etc. The purpose of this method is to prevent the weed plants from producing seed which can be spread to production fields and to prevent buildup of certain insects and plant diseases. With certain upright-growing, persistent weeds, this method "starves" the plant to death by causing the plant to draw upon its stored materials from roots and other storage organs. For this method to be effective, it must be repeated frequently.

Flooding entails the total submergence of the area under water for a period of time. This generally is done in the off-season and in Florida has been used on muck soils for control of other pests and the slowing of subsidence characteristic of organic soils. This method is a means of starving out the pests, also.

Burning of weeds has been used in vegetables in the form of flame weeding in some areas of the State. This technique may be used for ditchbank and waste area weed control as well as in the crop area. The latter requires a careful
shielding for protection of the crop plants or the use of a heat barrier, such as foam, over the crop row. Best control can be obtained with flaming when the weeds are small and succulent.

Mulching has proven to be an effective means of controlling most weeds in the cropping situation. It also has other cultural benefits which will not be dealt with here but add to the rapid rise in its popularity in high-value crops. Full-bed mulch culture as used in Florida offers some new weed problems which are difficult to control by mechanical means. Specifically, weeds grow through the plant holes in the plastic, and if herbicides are not used under the plastic or sprayed through the hole, the weeds that come up must be hand pulled. A layer of soil is thrown over the edges of the plastic or paper mulch material to keep it from blowing away. This layer of soil is difficult to mechanically weed without damage to the mulching material. Otherwise, the mulch does an excellent job of controlling weeds in the rest of the plant-bed area.

Tillage methods involve the lifting or cutting-off of the weeds from the soil or burying the weeds with soil. If they are cut or lifted, conditions must be right (hot and dry) to allow them to dry out and die. If done under moist situations, weeds will probably retake in their new location. When buried, weeds must be small enough so that they will not be able to push their way through to the top again.

Some of the tools used to affect lifting, cutting or burying are the various types of cultivation sweeps, harrows, rotary weeders, disks and plows.

Tillage for weed control has been inexpensive in the past. Points to be remembered are:

1. Crop roots can be injured by deep cultivation.
2. A freshly-cultivated field can be more susceptible to radiation frost injury than a non-cultivated field.
3. Wet weather can allow weeds to "get ahead" of the crop.
4. Generally, many weeds in the immediate area of plants are not controlled by cultivation.
5. Weeds can be a problem after lay-by. Usually late weeds offer a serious problem to harvest of the crop.
6. Some particularly hard-to-control perennial weeds such as bermuda grass, nutsedge and johnsongrass can actually be spread around the field to increase the weed problem. This is done by the tools themselves dragging parts of the plant around the field. These and certain other weeds can produce new plants from pieces of roots, rhizomes, tubers, stolons, etc., broken off from the mother plant. Thus, cultivation tools should be cleaned off occasionally to prevent this from occurring, particularly when moving out of areas of heavy weed infestation.

The energy situation is a factor which must be considered in evaluating these methods. Some involve the use of petroleum products which may or may not be available. Certainly an energy source is required to propel the tractors around the fields with the mechanical devices affixed to them. Since these methods are used periodically, the most efficient energy-using tractors should be used to keep the total fuel consumption low, which will also reflect a lower ultimate cost of the weed control program.
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II. HARVESTING AND HANDLING

A. Consumer Quality

In the past, the Vegetarian has carried a number of articles on vegetable quality and has considered what constitutes good quality in specific vegetables. It has also been mentioned that quality has an entirely different meaning to different segments of the industry. Quality cannot be "added back" to fresh vegetables once it deteriorates, but it can be taken away at any time between the field and the consumer's table. If the quality of a vegetable is lost at the retail level (or even after the consumer takes it home), which segment of the industry is hurt? The entire industry must pick up the tab for poor-quality produce, regardless of whether the poor quality is a result of the grower planting a poor variety or harvesting at the wrong maturity--the packer grading improperly or poor precooling--the trucker running the thermostat up (or unit off) to save fuel on his refrigeration unit--the receiver leaving the produce on the platform or holding it too long anticipating a better market--the retailer for poor display rotation or overstocking. Usually, these pitfalls are avoided. However, there are occasions when these or other problems do appear--sometimes unavoidably, sometimes through misunderstanding and once in a while, deliberately.

Perhaps, one of the reasons the retail quality problem has not received as much attention from the rest of the industry as it deserves is because the loss of revenue may be quite subtle. If some of the produce is bad enough to be discarded, the markup on that remaining must be enough to cover the loss. The negative effect of increased price on the volume of sales varies with different commodities. Losses of this type are visible, and if they are great enough, claims may be made against the person who appears to be most responsible for the deteriorated condition of the produce. Since these problems can be seen, they can be dealt with.

Another form of loss occurs when a vegetable looks good enough to go on display, but the customer is not satisfied with the quality when he consumes it. How long does it take for this individual to try that particular vegetable again? How many such encounters are experienced by consumers each day? What would sales be if all produce were handled in accordance with the knowledge and technology available to the produce industry? One bad experience may have a longer-lasting effect than several good ones.

According to recent surveys, consumers buy fresh fruits and vegetables for their taste. There are many other points in favor of fresh produce during an era when so much emphasis is being placed on nutrition, additives, cholesterol, etc. However, the key point is quality at the consumer level as judged by the consumer himself. It is easy to justify doing a less-than-perfect job by assuming that the next guy in the chain is going to do the same. Sometimes he will--but if each handler does his part, the consumer at least has a chance. Fresh vegetable quality must start in the field and receive top priority at each handling in order to give the consumer a premium product. Although any influence the vegetable packer-shipper has over the commodity usually ends far before retail level, if his brand-name is publicly displayed, the consumer will associate it with the appearance, texture and taste of that vegetable.

(Hicks)
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III. VEGETABLE GARDENING

A. Timely Gardening Topics

These questions and answers are suggested for agents' 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 October 20-26.

Question

I have been asked to bring in some of my vegetables to exhibit at the fair. How should I prepare them for best display?

Reply

Follow the rules and regulations printed up for your particular show. Such catalogs should clearly indicate the kinds (and varieties), the form in which the crops are to be shown, and the number to exhibit.

While special preparation techniques apply to some items (such as trimming and topping), in general the following points should be considered:

(a) Adhere to stated number of specimens.
(b) Label neatly and attach all labels in a uniform manner.
(c) Select specimens which are slightly above medium size (over-grown specimens are not typical and usually are poor in quality).
(d) Select specimens that are uniform in size, shape, color and degree of maturity.
(e) Select specimens without blemishes.
(f) Select a few extra specimens as replacements.

(2) Timely Topic for week of October 27-November 2.

Question

Next year, I would like to grow jack-o-lanterns in my own garden for Halloween. Is it practical here in Florida?

Reply

In spite of the problems, many pumpkins suitable for jack-o-lanterns are successfully grown throughout the State.

Florida gardeners who wish to grow jack-o-lantern pumpkins must rely on northern varieties. Most of these are very susceptible to mildew and other leaf diseases so common in the warm humid Florida climate. Since most pumpkins grow on large vines, adequate space must be provided (about 50 square feet per hill).

To be ready to grin on Halloween night, jack-o-lantern pumpkins must be planted in the spring, or at least no later than July 4. Many varieties need 4 months to mature.
The standard variety is the 'Connecticut Field' pumpkin, also called Big Tom. It is about 25 pounds in size. For a larger jack-o-lantern, try either 'Mammoth' or 'Big Max' which often weighs over 50 pounds and measures 5 feet in girth. Other varieties to try are 'Small Sugar' (good for pies, too), 'Spookie', 'Jack-O-Lantern', 'Cinderella', 'Cheyenne', and 'Winter Luxury'.

(3) Timely Topic for week of November 3-9.

Question

Why do the vegetable seeds I plant in my garden often fail to come up?

Reply

Unless you have saved your own seed or kept seed from last year, it is very unlikely that the fault is in the seed. It is most probably due to imperfect soil conditions or weather conditions. Fungus diseases in the soil may be rotting the seeds before they sprout, or the soil may be too wet or too dry. Some vegetable seeds require cool soil temperatures for germination; while others need warmer soils. For example, corn seedlings come up in 3-4 days at 90-95°F., but take 3 weeks or more to emerge when the temperature of the soil is 50°F. On the other hand, onions come up in 4-5 days planted at 80°, but require about 2 weeks or may not emerge at all at 95° and over.

Also, be sure you are not planting too deeply, especially where tiny vegetable seeds are involved.

Plant thickly (but not too thickly), then thin to the desired stand. Remember the old saying "One for the blackbird, one for the crow, one for the cutworm, and one to grow."

(4) Timely Topic for week of November 10-16.

Question

I would like to include lettuce in my garden plan. Does lettuce grow well here?

Reply

All of the four basic types of lettuce--crisphead, butterhead, leaf and romaine--grow well in all sections of Florida. Success depends upon the usual good gardening techniques, but more specifically, to growing the best varieties and planting at the proper times.

Lettuce is a cool-season crop; all types do best when planted from seed or are set out during the period September-March. Quickly summarizing the best varieties of the major types, they are:

- Crisphead - 'Great Lakes', 'Fulton'
- Butterhead - 'Bibb', 'Boston'
- Leaf - 'Salad Bowl', 'Black-Seeded Simpson'
- Romaine - 'Parris Island Cos', 'Valmaine', 'Dark Green Cos'

(Stephens)
B. Know Your Vegetables - West Indian Gherkin

The West Indian Gherkin (Cucumis anguris L.) is also known as burr cucumber and gooseberry gourd. It is similar to its close relative, the cucumber, in many aspects such as fruit characteristics, but is like the watermelon in others, such as leaf shape.

It is grown occasionally in home gardens throughout Florida, probably more in the summer than at other times. Since the plant is sensitive to frosts and cold temperatures, it may be grown only during the warm seasons. Time from seeding to harvest is 60-75 days.

The fruits are used mainly for pickling. They are oblong-oval (like a blunt-ended football) in shape, and range from 1 to 3 inches long. Each of the fruits is light green and very spiny.

The plant is a trailing vine, 5 to 6 feet long. The stem is angular, ridged and hairy; internodes are 2-3 inches long. At each node, a 1-2 inch long curling tendril appears, along with 2-4 pale yellow male flowers, a leaf petiole, and occasionally a fruiting branch. At some nodes, adventitious rooting occurs. It appears that female flowers are borne only on these secondary fruiting branches, rather than from a pedicel directly from the node.

The small leaves are deeply cut (often 5 lobed) similar to the watermelon leaf rather than broad-pointed like the cucumber.

(Stephens)