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. NOTES OF INTEREST

A. Abstracts for Papers Presented at the 1976 FSHS Meetings

There were 30 papers presented in the Vegetable Section during the Florida State Horticultural Society meetings held November 2-5, 1976 at Miami Beach, Florida. Anyone wanting a single copy of the abstracts of the papers presented can get one by writing this office. (Montelaro)

B. Potato Production - A Record Crop in 1976

According to economists of the U.S. Department of Agriculture*, the production of 300 million cwt. of potatoes for 1976 is a record fall crop. It is 9% larger than the 1975 fall crop and 4% larger than the previous record of 1974. Their historical observations of supply-price relationships for potatoes show that for each 1 percent change in supply, there is a price response of at least 3 percent in the opposite direction. In their opinion, the impact of this overproduction may be lessened somewhat by increase demand from European markets where potatoes will be in short supply (estimated at 60 million cwt.) again this year.


II. COMMERCIAL VEGETABLE PRODUCTION

A. Soil Tests Available for Vegetable Crops from Gainesville Lab

The soil testing lab at Gainesville was recently reorganized to better serve agriculture in Florida. In a recent meeting with Dr. Breland who directs the lab, and others in the Soil Science Department, we were apprised of impending changes in soil test methods and procedures. Details of the changes will be forthcoming at a later date. Within limits of facilities and budget, they are trying to give each commodity department in IFAS the best service possible. The soils testing lab has agreed to furnish County Extension Agents working with vegetable crops specific soil tests on request. These are over and above the routine testing presently performed. The purpose of this article is to explain how these tests may be requested and used.

The first of the specific tests is tissue testing for troubleshooting purposes. Tissue testing is time-consuming and expensive and requires special interpretive skills. For these reasons, it is not being recommended for routine use presently by the Vegetable Crops Department. However, it can be a valuable tool in troubleshooting. The soils lab will analyze tissue samples for suspected nutrient deficiencies or excesses upon approval by the Extension Vegetable Specialist. County Extension Agents wishing to avail themselves of this special test should contact the Extension Vegetable Specialist first.

Like a soil test, a tissue test is only as good as the sample taken. The tissue selected for sampling should be uniform in age, location on the plant, etc. Plants to be sampled for troubleshooting should represent the worst and best. In this way, differences in nutrients may be picked out more easily than otherwise.

Routine micronutrient analysis is not necessary for vegetable soils. We recommended recently in one of our Vegetarian articles an analysis for micronutrients every two or three years to develop a "history" of a soil. This test can be done by a
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commercial lab. Under special circumstances, an analysis for micronutrients in soil is available to County Extension Agents working with vegetables. The restrictions are similar to those put forth for tissue testing in troubleshooting.

Two additional tests available together with the routine soil test are (1) a KCl pH and (2) total soluble salts (TSS). Both of these tests are good tools for the consultant in vegetable crops production where heavy rates of fertilization are used. As explained in last month's Vegetarian, a "water pH" alone can be misleading in making liming recommendations. Upon request, agents now can obtain a KCl pH reading in addition to the common water pH. In areas where total soluble salts present serious problems, agents can request that test, also. Both KCl and TSS tests can be requested on the card that is sent in with the soil sample. Any questions on this discussion should be referred to the appropriate Extension Vegetable Specialist.

(Montelaro)

B. Cabbage Black Rot Regulations for Imported Plants

Growers in some of the cabbage producing areas in Florida often import transplants from other states for early fall planting. Most of the imported cabbage plants are free of diseases and offer no problems to growers. However, a few lots of plants infected with bacterial black rot (Xanthomonas campestris) slip into Florida each fall. Early introduction of this disease organism into commercial growing areas can play havoc with subsequent crops. It was for this purpose that the Department of Plant Industry (DPI) issued regulations governing the movement of cabbage transplants into Florida.

The regulation in its entirety is as follows:

"In order to prevent the movement into Florida of diseased or insect-infested cabbage plants, the Division of Plant Industry, Florida Department of Agriculture and Consumer Services, does hereby declare such plants to be a nuisance and prescribes the following conditions for the entry of cabbage plants into Florida from the State of Georgia:

All cabbage plants must be certified to have been grown under an official certification program or to have been inspected and certified to be apparently free of injurious insects, nematodes and plant diseases on the basis of an inspection no more than seven (7) days prior to removal from the soil. Exception: No tolerance will be allowed for the disease Bacterial Black Rot, Xanthomonas campestris.

All certified plants must be accompanied by an official certificate attached to each container affirming that the above requirements have been satisfied."

The regulation will benefit Florida cabbage growers without the added burdens of cost and unnecessary restrictions. Any questions on this regulation can be directed to the Department of Plant Industry or to the Institute of Food and Agricultural Sciences.

(Montelaro)
C. Making Fertilizer Recommendations

Some apprehension is usually felt the first time a new Extension Agent or fertilizer fieldman is called upon to make a fertilizer recommendation from a soil test for a commercial vegetable grower. Much of this anxiety is based on the knowledge that the grower has high production costs, short-term crops which provide little time for corrective action, and crops which may be sensitive to nutrient imbalance.

It may help the less experienced crop advisers to realize that:

1. Fertilizer recommendation is not an exact science.
2. The soil sample may not accurately represent the area for which the lime and fertilizer recommendations are requested.
3. Soil analysis results are generally considered to be only about 85% accurate in predicting crop needs.
4. Meaningful recommendations are based on as much supporting information as possible.

A careful history of the field, an understanding of the basic needs of the crop (removal of nutrients, root system, yield level), the kind of fertilizer to be used, and the resources of the grower may be as important as the soil test results. Many large grower-shippers use many inputs to determine their fertilizer program:

1. Soil testing (standard and soluble salts).
2. Tissue testing of growing crop (previously).
3. Extensive field and crop histories.
4. On-farm fertilizer-crop response testing.
5. Level of fertility desired: for maximum yield? just enough to feed crop? soil building? marginal profit crop?

Soil testing has been with us for many decades, but there is still a great deal to be done to make recommendations more accurate. A state soil testing service recently sent identical samples to a dozen soil analysis laboratories. The pH ranged from 5.6 to 6.7, organic matter ranged from 0.5 to 1.4%, calcium from low to very high, magnesium from very high to very high, phosphorus from medium to high and potassium from high to very high. Recommendations for a specified yield varied tremendously, too. The phosphorus recommendations varied 100%, nitrogen 200% and potash 300%. Wide discrepancies in results among soil labs often are caused by differences in lab techniques and criteria for interpretation rather than equipment failure or human error.

Until we know more about what size of sample is needed to represent an area sampled, have more accurate and rapid analytical techniques, and have more meaningful crop response to application rates established, we must rely on existing methods. A few suggestions which may be helpful in making recommendations:

1. Have current IFAS fertilizer recommendation guidelines at your fingertips. (Most of these guidelines are based on research in Florida or from elsewhere which may apply.)
2. Determine how and where the sample was taken. (Does it represent the field? What layer of soil does it represent?)
3. Determine the yield level desired.
4. Determine the managerial level of the grower. Why be ultra-specific on the fertilizer program if the pest management, irrigation, and other cultural details will be sloppy?)
(5) Try to develop follow-up records of yield and quality resulting from your recommendations for future use.

(6) Encourage the grower to make simple on-farm fertilizer trials. (A double rate or half rate on a few rows may be very helpful, but even better would be cooperative demonstrations of a slightly more complex nature.

(Marlowe)

III. HARVESTING AND HANDLING

A. Harvesting and Handling of Fresh Market Cabbage

Cabbage may be harvested when the heads reach a desirable size and firmness, and acceptability will persist for several days depending on environmental conditions. Each head is individually selected for cutting and a field may be harvested more than once because of variability in maturity and size of the heads. Packing may be done in the field, at the edge of the field, or at a central packinghouse. If done in the field, the harvester selects, cuts, trims and packs. Otherwise, the cabbage may be placed or thrown into a trailer, truck or bulk bin, or placed on a conveyor belt extending to one of these. Prototype equipment for mechanical harvesting has been developed, but requires uniformity of maturity, bed size, and other cultural practices that have not yet been adopted generally.

Sorting is limited to removal of loose leaves and some culls since the harvesting involves individual head selection. Cabbage quality is determined by physical characteristics such as appearance, trueness to type, firmness, defects or damage, number of wrapper leaves and length of stems. Physical damage such as bruising and broken heads is one of the principal causes of reduced quality. U. S. Standards have not been revised recently and official inspections generally are not used. Cabbage, however, is frequently separated into quality classifications based on the above characteristics with major emphasis on general appearance, size and firmness.

Wirebound crates, mesh bags, or cartons are the normal shipping containers. Field packs usually contain several random sizes of heads, and containers, generally wirebound crates or mesh bags, are jumble-filled by volume or weight. Each packed container weighs 50 to 55 pounds. If cabbage is packed at a central packinghouse, it may be washed and further sorted and trimmed. Containers may be randomly packed with several sizes, or limited quantities are place-packed by count of 16 to 24 heads in crates or cartons. Marketing distribution factors have not encouraged packing by size. Variability of size and firmness of the cabbage and the need for uniform packed container weight frequently results in bruised, crushed, or otherwise damaged cabbage unless the packing operation is closely supervised. Economic factors may result in lower grades of cabbage being shipped in less expensive containers such as mesh bags which may not provide adequate protection against physical damage during transit and marketing. Such physical injury may result in increased decay or further trimming losses during subsequent handling practices.

Recommended temperatures for transportation and storage of cabbage are 0° to 2°C (32° to 35°F), with a relative humidity of 90%. Precooling can effectively reduce temperatures to the desired level, and top icing is frequently employed during transit to maintain the proper low temperature. Precooling also is an effective method of minimizing moisture loss and wilting. Soft rots and other decay, yellowing and discoloration, wilting, and loss of ascorbic acid, other vitamins and nutrients will
occur at temperatures above that recommended. Cabbage exposed to ethylene, particularly at temperatures higher than recommended, may lose their green (or red) color, turn yellow, and lose their outer leaves. Cabbage, therefore, should not be transported or held in storage with ethylene-treated or ethylene-producing commodities such as apples. Florida-produced cabbage generally is not held in long-term storage.

(NOTE: This article was prepared by Dr. B. D. Thompson, Professor, Vegetable Crops Department, University of Florida, Gainesville, Florida.)

IV. VEGETABLE GARDENING

A. Timely Gardening Topics

These questions and answers are suggested here for your use in developing periodic (weekly) radio or newspaper shorts. They are based on letters of inquiry from gardeners around the state.

(1) Timely Topic for Week of December 12-18

Question

What is happening to my cucumbers? They were doing fine, but now I notice many of the young fruits are twisted and scarred with what looks like dried juice on the scars.

Reply

Since the problem occurred at the time of the year that we were having weekly blasts of cold wind from the north, I suspect cold wind injury. The cucumber plant being a warm-season crop is very sensitive to cold temperatures. Of course, frost or freezing temperatures will kill the plant, but injury can occur at temperatures above freezing, as you have witnessed. Fruit scarring by cold wind is often called "cold pox". The symptoms usually appear on the upper surface. The affected areas are scarred, light-colored and slightly cracked. There may be a small amount of gummy juice residue on the scarred tissue. The fruit may be twisted in shape.

A similar fruit disorder which often appears in Florida gardens is scab. This fungus causes spots and craters on the fruit. Scabby spots are more regular in appearance with "gum" that is darker brown in color than in the case of cold injury. At low temperatures, where cold injury usually occurs, scab development is slowed considerably.

(2) Timely Topic for Week of December 19-25

Question

What is meant by the term "strip-mulching" which I have heard about recently?

Reply

When most gardeners mulch, they cover the entire plant-bed surface with some material such as black plastic, paper, leaves or straw. However, with "strip-mulching" only a narrow 10 to 12 inch wide strip of plastic mulch is used. Its purpose is to cover the fertilizer band and prevent the fertilizer from leaching or washing out of the soil. Here's how to make it work. On both sides of the seed plant row, open a
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shallow furrow and apply the fertilizer 2-3 inches deep. Cover with soil; then place a 10-12 inch wide strip of black plastic film in an inverted "U" shape over the fertilized area. Bury the edges of the plastic to prevent its blowing in the wind. Planting is then done through holes in the center of the strip. An alternative is to use two strips, one covering each of the fertilizer bands, the seed or plants being placed between the strips. This method is particularly advantageous over full-bed mulching in that it allows the bed to be watered more thoroughly. Thus, "strip-mulching" can be used even on well-drained, sandy soils.

(3) Timely Topic for Week of December 26-January 1

Question

What materials should I use in my compost pile to make good artificial manure?

Reply

Most any plant material may be used, along with a variety of animal wastes. Leaves, grass, weeds, garden refuse, kitchen wastes, peat, green crotalaria, water hyacinths, manure, and fish scraps are all suitable. Green succulent materials decompose more rapidly than dry, mature grass and weeds. However, a large quantity of these succulents is required to make a small amount of compost. Green crotalaria usually contains 75-80% water and 400-500 pounds of green material are required to supply 100 pounds of dry matter. Even more water hyacinths are needed—1000 pounds for 100 pounds of dry matter.

Dry leaves do not decompose quickly because they do not wet easily and because they dry out quickly. Also, they contain relatively high contents of tannins and other materials that are slower to decompose than carbohydrates and proteins.

The net amount of nitrogen released from an organic material depends on the nitrogen content of the material, the completeness with which it is destroyed and the amount of nitrogen used by the decay organisms. If the material is high in available energy and contains less than 1.5% nitrogen, most of the nitrogen will be used by the microorganisms. If the nitrogen content is above 1.5%, most of the extra nitrogen will be released for use by plants fertilized with the compost.

(4) Timely Topic for Week of January 2-8

Question

I have been able to grow a lot of vegetables in my Florida garden. However, most everything is ready for harvest at about the same time. How can I keep so much good produce from going to waste?

Reply

It is good to hear about a problem of too many vegetables rather than too few. Here are a few ways to avoid the problem, or to lessen it considerably.

(1) Plan more carefully. Avoid planting more than you and your family can use.

(2) Do not plant vegetables that you don't like to eat. Some gardeners plant an item just to see what it looks like, then fret when they see it go to waste from not knowing how to cook it.
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(3) Succession planting. Plant just a few seeds of any one vegetable at weekly or bi-weekly intervals. For example, instead of planting 50 lettuce seeds on September 15 and ending up with far too much to eat at one time in November, plant seeds for 5 plants September 15, 5 more September 30, 5 more October 15, 5 more October 30, and continue through the season until that row is all planted. The harvest will be extended considerably and only a few heads of lettuce will be ready at any one time.

(4) Plant an assortment of varieties which have different maturity dates.

(5) Learn and practice proper freezing, canning and storing techniques.

(6) Share surpluses with neighbors by selling, trading or giving away the produce.

(Stephens)

B. Know Your Vegetables - Anise

Anise, or Sweet Alice is from the Umbelliferae family (*Pimpinella anisum* L.).

Anise is an annual herb related to carrot, which reaches a height of about 2 feet. Leaves and seeds are produced in large, loose clusters. Seeds are oblong, about 1/6 inch long and curved. Fresh leaves are used for flavoring and garnishing, but the important articles of commerce are the seeds and oil obtained from them.

This annual herb has been widely cultivated throughout the world. The dried fruits, which are usually called seeds, have been used for centuries for flavoring pastries, candies and beverages. The oil distilled from the seed is preferred frequently for flavoring and has gained favor in this use because the seed has an undesirable appearance in some edible products. The oil is also used in medicines, perfumery, soaps, and other toilet articles.

The plant requires a light, fertile, sandy loam that is well drained and can be so pulverized that the small seed can be planted at a uniform depth and the very small young seedlings cultivated. A frost-free season of at least 120 days is required and uniform rainfall throughout the growing season is essential because the plant is unfavorably affected by sudden changes from wet to dry periods. The temperature throughout the growing season should be fairly uniform without excessively hot periods, especially following rainfall. When the seed is near maturity alternate rainy and dry periods cause it to become brown, which greatly reduces its quality, and under such conditions the harvesting of the seed is difficult.

The seed is planted about 1/2 inch deep in the field in rows 18 to 30 inches apart at the rate of one to two seeds per inch. At this rate about 5 to 10 pounds of seed are required to plant 1 acre. Growers in some European countries broadcast the seed, but as a rule, weeds are a major difficulty and if these are present at harvest, they are likely to affect the market value of both the seed and the oil. If it is necessary to broadcast the seed and cultivation is, therefore, impossible, it is important that the land be fallowed and in clean culture the previous season. The harvesting of anise presents some difficulties in that the umbels ripen progressively and the seed ripens unevenly within each umbel.

In countries where the plants are grown commercially, they are either pulled out of the ground or the tops are cut off by hand. The material, thus, obtained is
tied in bundles and then stacked in a conical pile with the fruiting heads toward the center. This is usually done when all the seed of the umbel is still green. The seed then continues to ripen and when mature does not discolor and shatter from the plant. In foreign countries, the seed is usually flailed out, but it can doubtless be threshed by machinery. After the threshed seed is cleaned, it is bagged for the market. The oil is extracted from the seed by steam distillation. Under favorable conditions, a seed yield of 400 to 600 pounds per acre has been obtained.

The climatic and soil conditions of the Central and Eastern States offer some possibilities for anise production, but the rainy weather that may occur there when the seed should be harvested may reduce the yield and quality. Some irrigated sections in California and elsewhere in the West can perhaps be utilized for this crop if the temperatures are not too high during the growing and maturing season. The plant also has possibilities as a winter crop in the irrigated valleys of the Southwestern States, where it must be planted late in September or early in October. Not much is known of its adaptability to Florida conditions, since so little is grown here. Some gardeners have grown it successfully in the fall as a garnish green.

(Stephens)