Contents

I. NOTES OF INTEREST
   A. Calendar
   B. New Publications

II. COMMERCIAL VEGETABLES
   A. Changes in ESTL Computer-Printed Results for Vegetable Soil Tests.
   B. Geminivirus Subcommittee Meeting.
   C. National Pepper Conference Meeting in Delaware.
   D. Timing of Vegetable Production.
   E. Increased Use of Modified Atmospheres for Shipping Florida Strawberries.

III. VEGETABLE GARDENING
   A. Revised Vegetable Gardening Guide.

Note: Anyone is free to use the information in this newsletter. Whenever possible, please give credit to the authors. The purpose of trade names in this publication is solely for the purpose of providing information and does not necessarily constitute a recommendation of the product.
I. NOTES OF INTEREST

A. Calendar.

April 20, 1990. State FFA Vegetable Identification Contest, Reitz Union, UF, Gainesville. (Contact Jim Stephens)

B. New Publications.


II. COMMERCIAL VEGETABLES

A. Changes in ESTL Computer-Printed Results for Vegetable Soil Tests.

During the last week of February, changes were made in the ESTL program that prints out soil-test results and fertilizer recommendations for vegetables. The changes involve three major areas.

First of all you will note that the calibration chart has changed. What we call low, medium, and high has changed due to the recalibration efforts of Ed Hanlon and myself regarding the Mehlich-I soil-test extractant. The change in the computer print-out reflects the recalibration. More details on this are available from Notes in Soil Science No. 38 (SS-SOS-907) "IFAS Standardized Fertilization Recommendations for Vegetable Crops."

The second change involves the actual fertilizer recommendations. The most important point here is that there will no longer be a fertilizer recommendation provided for soils that test high or very high in P or K. Previously, high-testing soils received an "insurance" recommendation.

The third change involves the footnotes. The set of footnotes that accompany the fertilizer recommendation has been essentially re-written to contain many more pointers and suggestions for managing the recommended fertilizer.

These changes were made to reflect the status of research on fertilizer management and crop nutrient requirements for vegetables in Florida. If you have any questions, please contact me.

(Hochmuth, Vegetarian 90-03)

B. Geminivirus Subcommittee Meeting.

The Geminivirus Subcommittee (GVS) met February 1, 1990 in Homestead during the workshop on "Sweetpotato Whitefly-Mediated Vegetable Disorders in Florida". Subcommittee members include Dr. Agrios (Chairman), Dr. Emino, Dr. Hiebert, Dr. Mellinger (Glades Crop Care), Mr. Tim Nance (Gulf Coast Tomato Growers), Dr. Powell, Dr. Purcifull, Dr. Schuster, Dr. Simone, Dr. Stansly, Dr. Stoffella, and Dr. Vavrina.

The GVS was made aware that geminivirus-like symptoms have been reported on Hibiscus and greenhouse cucumbers to date. Pepper geminivirus diagnosis may present special problems, because symptoms similar to Tomato Necrotic Dwarf Virus, also whitefly transmitted, have been observed in tomatoes. It was generally accepted that several other whitefly transmitted viruses now in the Western Hemisphere will sooner or later be in Florida.

Short-term approaches approved by the GVS include: a color fact sheet on the geminiviruses and other whitefly transmitted viruses in vegetables (publication insured by Deans Woeste and Davidson), an additional biological scientist to be funded in the Plant Disease Clinic to help process the mounting number of samples, development of diagnostic DNA and serological probes to these viruses.
under the direction of Dr. Hiebert, a postdoc to assist Dr. Hiebert in probe development and an OPS person to run the probes once developed.

Ongoing efforts in 1990 will include: probe development (Hiebert), monoclonal antibody testing and virus epidemiology (Powell), ornamental geminivirus survey (Zettler), electron microscope virus characterization (Purcifull), whitefly management and virus transmission studies (Schuster and Stansly), pepper whitefly management (Webb), virus exclusion in transplant production and tomato yield assessment (Vavrina), and tomato breeding for virus resistance (Scott). Industry interfacing efforts by Dr. Mellinger will provide a data base of geminivirus incidence and progression from over 3,000 acres of vegetables. And Tim Nance offered Gulf Coast Tomato Grower fields for sites of data accumulation by IFAS scientists. The next meeting of the GVS is May 2, 1990 in Bradenton.

(Vavrina, Vegetarian 90-03)

C. National Pepper Conference Meeting in Delaware.

The University of Delaware is hosting the 1990 National Pepper Conference in Wilmington, Delaware on July 25-27, 1990. The meeting will include research paper presentations and tours of Delaware and New Jersey vegetable production areas. Registration is $75.00 before June 1, 1990 and includes proceedings, 3 lunches, buffet dinner and tour.

If anyone would like information, I can supply all the necessary forms. If anyone would like to present a paper at the meeting, I can provide you with the form or you can call Mr. Ed Kee at 302-856-7303. Some of our county faculty and pepper growers have attended this meeting in the past and have benefitted from it.

(Hochmuth, Vegetarian 90-03)

D. Timing of Vegetable Production.

It is sometimes useful to time vegetable production to take advantage of market windows for a particular vegetable. At other times it is critical to time the production of a certain vegetable, for example, jack-o-lantern pumpkin for the Halloween market.

Several factors, including variety, season of the year, and location in the state, affect timing of vegetable production.

Data provided by T. K. Howe at the Gulf Coast Research and Education Center in Bradenton for the spring 1989 tomato variety trial illustrates the effects of variety on timing. 'Duke' and 'Bingo' produced about 62% of their crop in the first harvest, whereas 'Solar Set' and 'Bonita' produced only about 42% of their crop at first harvest.

The effect of season on timing is illustrated in data developed on slicing cucumber at the Central Florida Research and Education Center at Leesburg by G. W. Elmstrom. Spring crops required from 37 to 67 days with an average of 57 days from seeding to first harvest. On the other hand, fall crops required from 40 to 50 days with an average of 45 days from seeding to first harvest. Because of good growing conditions early in the season, fall vegetables usually mature quicker than spring-planted vegetables.

Location in the state has an appreciable effect on time from transplanting to first harvest of the spring crop as indicated in Table 1.
Table 1. Days from tomato transplanting to first harvest for spring crops at four locations in Florida.

<table>
<thead>
<tr>
<th>Location</th>
<th>Days Range</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immokalee</td>
<td>85-105</td>
<td>94</td>
</tr>
<tr>
<td>Bradenton</td>
<td>81-101</td>
<td>90</td>
</tr>
<tr>
<td>Gainesville</td>
<td>84-91</td>
<td>88</td>
</tr>
<tr>
<td>Quincy</td>
<td>78-91</td>
<td>83</td>
</tr>
</tbody>
</table>

Both the range in days and average number of days from transplanting decrease from south to north in the state. The fewer days from transplanting to first harvest is related to later planting and the associated longer days and better growing conditions.

Within the constraints of weather, most frequently the threat of frost at the beginning of the spring season and end of the fall season and summer rains at the end of the spring season and beginning of the fall season, it is possible to time harvests with a fair degree of accuracy. But, growers aiming for a particular market or market window must keep precise records in order to fine tune the timing of their crops to take advantage of these situations.

(Maynard, Vegetarian 90-03)

E. Increased Use of Modified Atmospheres for Shipping Florida Strawberries.

A significant number of shippers in the Plant City area have begun using modified atmosphere treatments for shipping strawberries this season. Since last season there has been a six-fold increase from 2 to 12 shippers employing this procedure. The system currently being used is called Tectrol Atmospheres and is manufactured by Transfresh Corp., Salinas, CA. Over 50% of all strawberries shipped from California are treated with this system or another type of modified atmosphere treatment.

Strawberries are quite perishable, being especially susceptible to mechanical injury during harvest and handling, and water loss and decay during shipping. For these reasons, several years ago Florida growers in this area converted to the use of standard cartons which are palletized in the field to minimize injury and which facilitate forced-air precooling. After transport to the shipper the berries are rapidly precooled to about 35°F to remove field heat and reduce the potential for water loss and decay during shipping.

The shipping life of strawberries can be extended by several days through the use of controlled or modified atmospheres in the storage environment. These procedures utilize low oxygen concentrations in conjunction with refrigeration to slow the respiration rate of the crop being stored, thus extending shipping life. For many crops elevated levels of carbon dioxide suppress growth of decay pathogens. Controlled atmosphere (CA) storage, as the name implies, involves constant control of the atmosphere in order to maintain the desired gas mixture in the storage environment. Modified atmosphere storage (MA) is achieved by a single injection of a desired gas mixture into a gas-tight room, a refrigerated trailer or an overwrapped pallet, which is how the Tectrol system works. MA can also be achieved by allowing the respiration of the product to lower oxygen and raise carbon dioxide concentrations; this method is more often used for consumer packages.

In 1988 we studied the effect of carbon dioxide levels on six fungal pathogens associated with Florida-grown strawberries (C. Ragland, J.A. Bartz, J.K. Brecht and S.A. Sargent). The inhibitory effects of storage at 50° and 20% CO₂ on fungal growth were equal for Dendrophoma obscurans, Colletotrichum acutatum, C. Fragariaeae, Glomerella cingulata and Alternaria tenuissima. Botrytis cineria was controlled equally at 50° and 68° with 20% CO₂.
The use of MA-treated pallets has been well-received by buyers. Although the added benefits of MA and CA are minimal for strawberry shipments to local markets, both show potential for increasing shipping life of strawberries in order to reach distant markets in the U.S. and Canada and for exports.

(Sargent, Vegetarian 90-03)

III. VEGETABLE GARDENING

A. Revised Vegetable Gardening Guide.

Extension Circular 104-Q, revised February 1990, is now off the press and available through normal channels. Some 16,000 copies were printed at a cost of 10.9 cents per copy. County orders should have been submitted with last year's county plans of work, so hopefully each county will shortly receive the number of copies requested.

A number of major and minor changes were made in the 1990 edition. Of course, my colleagues in the pest and soils management disciplines updated their respective sections and are listed as co-authors. My thanks to Bob Dunn, Extension Nematologist; Jerry Kidder, Extension Soils Specialist; Don Short, Extension Entomologist; and Gary Simone, Extension Plant Pathologist, for their inputs with this circular. If any of you readers have questions about their particular segments, please contact them individually.

One new item in the guide was a section giving directions for making backyard compost, as follows: "Compost - as a home garden composter you can reduce the amount of yard waste going to landfills, while manufacturing your own compost. Composting is easy, and yields a manure-like organic fertilizer/soil conditioner highly beneficial on Florida's infertile native soils. A small compost pile measuring 3'x3'x3' (1 cu. yd), called a compost unit, is easily made.

Construct a bin with sides made from treated lumber, concrete blocks, wire or other durable materials.

Make successive 12-inch thick layers of plant waste such as leaves, lawn clippings, shredded branches, and wood chips.

Onto each layer, distribute one cup each of dolomite and 6-6-6 fertilizer.

Moisten each layer, then keep the pile moist.

After 3-4 weeks and every week thereafter, thoroughly mix the compost pile.

Compost should be ready for use in 2 to 12 months, or when plant parts are decomposed.

Build larger piles by putting together several units into a single bin."

Fungicides - The use of the EBDC fungicides proposed for banning has been left in the recommendations, until current stocks and labels are depleted.

Insecticides - Insecticidal soap was added to the suggested list for home gardeners. The basic core of insecticides now includes: B.t., carbaryl, malathion, diazinon, soap, and baits of dylox or diazinon.

Nematicides - Metam remains as the most readily available effective material for home soil fumigation.

Varieties - Keep in mind that there are space limitations to the list of varieties we could include in the guide. The following vegetable varieties were added to the list.


New section added - Plant family. This
section was added for each vegetable so that gardeners can practice crop rotation. They are encouraged to group family members and avoid planting family members following each other in successive seasons.

Crop comments - in this new section, brief considerations are outlined following each vegetable. For example, after sweet potatoes is stated," Convolvulaceae - sweet potato weevils are a serious problem. Start with certified - free transplants. Use vine cuttings to prolong season."

In addition to the Vegetable Gardening Guide, Cir. 104-Q, the Organic Vegetable Gardening guide, Cir. 375A, has been reprinted in sufficient quantity for use in county programs.

(Stephens, Vegetarian 90-03)

Prepared by Extension Vegetable Crops Specialists

Dr. D. J. Cantliffe  Dr. G. J. Hochmuth  Dr. J. M. White
Chairman  Assoc. Professor (Editor)  Assoc. Professor

Dr. D. N. Maynard  Dr. S. M. Olson  Dr. S. A. Sargent
Professor  Assoc. Professor  Asst. Professor

Dr. W. M. Stall  Mr. J. M. Stephens  Dr. C. S. Vavrana
Professor  Professor  Asst. Professor