Vegetarian 91-12
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I. NOTES OF INTEREST

A. Vegetable Crops Calendar.

January 11, 1992. Suwannee Valley Field and Greenhouse Vegetable Grower's Shortcourse and Trade Show. Suwannee County Coliseum, Live Oak. (See D, E, F)

February 8, 1992. 4-H/FFA Horticultural Plant ID Contest. Florida State Fair, Tampa. (Contact Jim Stephens).

March 5-6, 1992. Postharvest Horticulture Institute. University Centre Hotel, Gainesville. (Contact Steve Sargent).


B. 1992 Sweet Corn Institute Canceled.

The Sweet Corn Institute which had been scheduled to be held in February in 1992 has reluctantly been canceled. The Vegetable Crop Extension Specialists and Agents during the planning session agreed, (not unanimously) to cancel this years program. It is felt that the limited remaining resources and travel budgets should be allocated to higher priority areas or more pressing needs. Priority program planning has been a must this year and several programs such as the Watermelon Institute and the Sweet Corn Institute have had to be postponed for at least a year.

The information to be extended at the institute will be made available to the sweet corn industry through other sources. (Stall, Vegetarian 91-12)

C. New Publications.

FL 4-H Horticulture ID and Judging Manuals. (FFI-Kathleen Ruppert, E. Hort.)

The following Suwannee Valley AREC Extension Reports written by Robert Hochmuth, et al. are available from the AREC, Live Oak.

Results of Four Muskmelon Cultivar Trials. Report 91-1.


Polyethylene Mulch and Transplants Increase Early Watermelon Production in North Florida. Report 91-10.

D. Suwannee Valley Field and Greenhouse Vegetable Grower's Shortcourse and Trade Show.

Suwannee Valley Coliseum, Live Oak, FL January 11, 1992

8:30am Registration and Trade Show (coffee and donuts)

AM Concurrent Sessions (choose one)

9:45am Field Vegetable Session (see E.)
9:45am Greenhouse Veg. Session (see F.)
12:00 n Lunch and visit exhibits

PM Concurrent Sessions (choose one)

1:15pm Greenhouse Vegetable Session or Field Vegetable Session
Meal reservations at $5.00 each are required by January 7, 1992, Call 362-1725.

*Credits (CEUs) will be granted for each session toward renewal of certification for pesticide applicators.

Sponsored by: IFAS & area agribusinesses.

**E. Field Vegetable Session - Extension Conference Room.**

9:45am WELCOME: Steve Ryan, IFAS

9:50am Agriculture and Migrant Labor, Walter Kates, FFV A

10:00am Florida License and Bond Considering Changes, Jim Brooks FDACS.

11:00am Research on Controlling Sweet Potato Whitefly With Detergent Sprays, Charles Vavrina, IFAS

11:30am Tips for Successful Stand Establishment of Peppers, Charles Vavrina, IFAS

1:15pm Making Double Cropping on Plastic Mulch Work for You, George Hochmuth, IFAS.

2:00pm Testing Plant Sap - A New, Quick Field Test for Managing Fertilizer Programs, Jim Fletcher, IFAS

2:30pm ADJOURN

**F. Greenhouse Vegetable Session - Exhibition II Building.**

9:45 am WELCOME: John Woeste, IFAS

10:00am Tips for Growing and Fine Tuning Vegetable Production in Rockwool, George Hochmuth, IFAS

10:50am In Search of Alternative Crops for Florida Greenhouses:

* Herbs - Michael Dowgert, Agro Dynamics

* Pepper Production and an Update on Tomato Cultivars - Jim Farley, DeRuiter Seed,

1:15pm New Disease Issues - (new viruses, gray leaf spot, alternatives to Benlate), Gary Simone, IFAS

2:00pm Detecting New Greenhouse Insect Pests, Bob Hochmuth, IFAS

2:30pm ADJOURN

3:00pm - Open House at Suwannee Valley

5:00 AREC Demonstration Greenhouse, Tomato Cultivars, Peppers, and Eggplant.

* Greenhouse growers are encouraged to bring a 2-4 ounce sample of their final nutrient solution with them to the trade show for a quick (while you wait) analysis of nitrogen and potassium. This will be done with easy-to-use ion selective electrode tests. Check in at the registration desk for this test.

**II. COMMERCIAL VEGETABLES**

*A. Seedless Watermelon Variety Trial Results, Spring 1991.*

Although the procedure for production of seedless watermelons has been known for almost 50 years and commercial varieties have been available for nearly 20 years, the interest in and acreage of seedless watermelons has remained small. Erratic performance, poor seed germination, high seed costs, and inadequate varieties resulted in the lack of interest in seedless watermelon production.

Specialty vegetables are in high demand and seedless watermelons offer an attractive alternative for the up-scale consumer and the food service industry. Seedless watermelons are being promoted by marketing organizations and seed companies to stimulate demand. At that time, new varieties are being developed that are superior to those already available.
The objective of this trial was to evaluate the performance of seedless watermelon varieties and experimental lines under west central Florida conditions.

Seed of 27 seedless watermelon varieties or experimental lines were planted in a peat-lite growing mix in no. 150 Todd planter flats on 13 February. The watermelon transplants were grown by a commercial plant grower. The plots were 24-ft long, had eight plants each, and were replicated three times in a randomized, complete block design. Icebox and standard watermelon were direct seeded in beds on each side of two seedless watermelon beds on 21 February to serve as diploid pollenizers.

Watermelons were harvested on 14 May and 31 May. Marketable (U.S. No. 1 or better) according to U.S. Standards for Grades were separated from culls and counted and weighed individually. Soluble solids were determined with a hand-held refractometer on at least six fruit from each entry from the first harvest.

Early yields, represented by the first of two harvests, ranged from 13 cwt/A for 'Honeyheart' to 241 cwt/A for NVH 4296. Early yields of 21 other entries were statistically similar to those of 'Honeyheart', whereas 23 other entries had yields similar to those of NVH 4296. Average fruit weight ranged from 6.2 lb for 'Honeyheart' to 13.4 lb for CFREC 89-6 and CFREC 89-11. Average weight of fruit at first harvest of seven other entries was similar to that of 'Honeyheart', whereas 22 other entries had average fruit weight similar to those of CFREC 89-6 and CFREC 89-11. Accordingly, early yields and average fruit weight did not vary greatly among the entries included in this trial.

Fruit soluble solids were uniformly high ranging from 11.1% for 'Millionaire' to 12.9% for SWM 8702. Accordingly, soluble solids in all entries exceeded the 10% specified for option use in the U.S. Standards for Grades of Watermelons.

Total yields ranged from 261 cwt/A for CFREC 89-4 to 546 cwt/A for 'Ssuper-sweet 5032'. Eighteen other entries had total yields similar to those of CFREC 89-4, whereas 23 other entries had total yields similar to those of 'Ssuper-sweet 5032'. Average fruit weight for the entire season varied from 8.4 lb for NVH 4296 to 12.9 lb for 'Ssuper-sweet 5032' and 'Ssuper-sweet 5344'. The average fruit weight of 13 other entries was similar to that of NVH 4296, whereas 14 other entries had average fruit weight similar to those of 'Ssuper-sweet 5032' and 'Ssuper-sweet 5344'. Although total yields far exceeded the state average yield of about 180 cwt/A for the 1985-86 to 1989-90 seasons, they were considerably lower than yields from seedless watermelon trials at Bradenton in the spring 1989 and 1990 seasons. A high gummy stem blight incidence which was exacerbated by almost 8 inches of rain which occurred in the latter half of May may have contributed to this situation.

For more details on this trial, request GCREC Research Report BRA1991-21 from the author.

(Maynard, Vegetarian 91-12)

B. Plant Sap Testing Protocols.

Plant sap testing for nitrogen and potassium is being more widely adopted in Florida vegetables. The practice is finding usefulness with drip-irrigated vegetables, especially tomatoes for guiding N and K fertilizer injections. Over the last few years, IFAS workers have developed sap testing protocols for vegetables. These guidelines along with a few other precautions are presented in this article in an attempt to provide a baseline operating protocol so that we achieve the best benefit from sap testing. A listing of critical ranges for fresh sap nitrate-nitrogen is presented in "Plant Tissue Analysis and Interpretation for Vegetable Crops in Florida", Special Series Report SSVEC-42.

Sampling

Time of day. Temperature and time of day influence sap nitrate content.
Research shows that making readings consistently between 10:00 AM and 2:00 PM gives the most dependable results.

Leaf age. The IFAS calibration charts for vegetable sap testing were developed for petioles of most-recently-matured leaves. These are leaves that have essentially stopped expanding in size.

Leaf part. The tests were calibrated using the fleshy petiole of the leaf. For most crops the petiole (leaf stem) is easy to identify. For crops like tomatoes having compound leaves, the petiole is the whole leaf stem with all the small petioliules (and tiny leaflets) stripped off. In normal situations the leaf petiole will be about 8 inches in length. For some crops such as pepper or eggplant some of the lower part of the leaf blade can be trimmed away to gain more petiole per leaf. Trim only about the lower one inch of the blade away. Throw out the rest of the blade and midrib.

Number of leaves. Even though three or four leaves might be enough to produce a sufficient amount of sap for testing, you might need to sample additional plants to be sure the final sap is representative of the field or zone being tested. Chop up the leaves, mix, and subsample the chopped petiole pieces to get the final sample to crush. Usually about 20 leaves are enough to adequately represent a 5 to 10-acre field if that field is judged to be uniform. Crops with small, essentially "dry" petioles (strawberry) will need to have more petioles collected to get enough sap compared to fleshy crops such as tomato.

Sap Pressing

Equipment. All that is needed is a garlic press or lemon press to squeeze the sap from the petiole pieces. However, if many samples are being tested, then investment in a hydraulic plant sap press is well advised. (HACH Company, PO Box 389, Loveland, CO 80539). Other equipment includes sampling knife, scissors, paper towels, distilled water rinse, chopping knife and board, and testing kit.

Storing petioles. We recently tested some options for storing samples so that consultants or others wishing to sample several farms and then read the sap later could have more flexibility. It appears that fresh petioles can be stored on ice for up to 8 hours without appreciable changes in sap nitrate concentration. Store whole (unchopped) petioles, not whole leaves. Strip the blades from the petioles and store petioles in a plastic bag on ice in a cooler.

Petioles also can be stored at room temperature in a plastic bag for up to 1 1/2 to 2 hours. Do not store whole leaves or petioles in open air. Otherwise, the petioles will wilt and nitrate readings will not be accurate. Always store petioles only. Do not store sap. Cold petioles should be warmed to room temperature before reading since temperature differences between sap and meter might affect results.

Reading time frame. Measurement of the nitrate content of the pressed sap must be made within a minute or two of pressing. Otherwise nitrate readings will change from the fresh petiole condition.

Test Kit Management

Calibration. Test kits should be calibrated and tested with standard, known nitrate and potassium solutions which are available from the test kit manufacturer. With the colorimetric test kits, the calibration with a known solution will help tell if your chemicals are still good. Chemicals on the test strips or in the powder pillows of the various kits will deteriorate with time and with exposure to heat and light. The electrode testing kit will need to be frequently calibrated with standard solutions. It is a good idea to check the calibration every 5 or 6 samples. Readings should be done indoors in the shade. Avoid direct sunlight on the meter since this can affect operation of meter.

Calibration scale. Samples should always read within the calibration scale (reading scale) of the test kit instrument. If sample saps are higher than the high
end of the scale, the sap will need to be diluted. Reading within the calibrated scale improves accuracy.

Kit care. The sap kits are scientific tools that need to be properly cared for. Always store the kits and chemicals in a protected place and within the proper temperature ranges specified by the manufacturer. It is not a good idea to store kits in the pick-up truck or at the pump house.

Calculations

Nitrate conversions. Some kits read out in nitrates and some in nitrate-nitrogen. The calibration tables developed by IFAS are in nitrate-nitrogen values. For the kits that read out in nitrates (NO₃), you will need to divide by 4.43 to get nitrate-nitrogen which can then be compared to the IFAS chart values. Potassium is usually read directly as ppm K⁺.

Sap versus dried petioles. There are some published book values for petiole nitrate-nitrogen. However these book values are usually based on dried petioles and are not directly transformable to fresh sap nitrate-nitrogen concentrations.

(Hochmuth, G., Vegetarian, 91-12)

III. PESTICIDE UPDATE

A. Weed ID Guide from Southern Weed Science Society.

Several Agents expressed interest in obtaining the total Weed ID Guide or obtaining the later sets of the guide that they do not have. The Weed ID Guide contains single page (both sides) identification information on weeds found in the southern United States. Pictures of the weeds are in color. Updates and new weeds are published periodically. Advanced payment is required.

The sets may be obtained as:
Weed ID Guide #4, 1988 @ $15.00 set.
Weed ID Guide #5, 1989 @ $15.00 set.
Weed ID Guide Binder @ $7.00.

They may be obtained from:
Southern Weed Science Society
309 West Oak Street
Champaign, IL 61820
217/356-3182

Also, the publication "Research Methods in Weed Science", 3rd Edition, 1986, may be obtained for $30.00.

(Stall, Vegetarian 91-12)

IV. VEGETABLE GARDENING


Soon a newly revised edition of the Vegetable Gardening Guide (Circular 104) will be released. This article will deal with the revisions, but first, let me remind you that this will be the first edition offered on a "for-sale" basis.

It remains to be seen how the distribution process will work, and to what degree of efficiency. County agents will need to arrange for purchase of bulk supplies if needed, and then devise a method for collecting on a per-copy basis. Of course, anyone will be able to buy a single copy directly from IFAS Publications. Also, revisions will show up in one of the next CDROM discs.

Now, here is a summary of the changes and/or additions (revisions) which you can expect to see in the new Planting Guide section of the circular. The circular also includes changes (not reported here) from the following four colleagues of mine in their respective areas of responsibility: Bob Dunn (Nematology), Jerry Kidder (Soils), Don Short (Entomology), and Gary Simone (Plant Pathology).
**Change 1. Planting Guide Chart: Varieties**

**Sweet Potatoes:**  Add 'Sumor'

**Tomatoes:**  Add 'Micro Tom'

**Mustard:**  Add 'Tendergreen'

**Onions:**  Add "Multipliers" - "Shallots"

**Spinach:**  Remove 'Dixie Market' and 'Hybrid 7'

Add 'Melody' and 'Tyee'

**Strawberry:**  Remove 'Tioga', 'Douglas', and 'Tufts'

Add 'Chandler' and 'OSO Grande'

**Change 2. Dates of Planting**

**Mustard (North):**  Remove 'Jan-Mar' and 'Sept-May'

Add 'Sept-Mar'

**Change 3. Plant family/crop comments**

**Beans, snap:**  Add Flowers self-pollinated. Use shell beans green or dried.

**Cantaloupe:**  Add Mulch to reduce fruit rots and salmonella. Harvest at full-slip stage.

**Corn, Sweet:**  Add Plant in multiple-row blocks.

**Cucumbers:**  Add For greenhouse, use parthenocarpic type.

**Eggplant:**  Add Requires warm weather

**Peas, Southern:**  Add Makes good summer cover crop.

**Pumpkin:**  Add For big ones, try 'Atlantic Giant'.

**Squash:**  Add Winter types store longest.

**Tomatoes:**  Add 'Better Boy' appears resistant to root-knot.

**Watermelon:**  Add Florida record-size melon is 'Carolina Cross'

**Carrots:**  Add Sow seeds shallow and thin to proper stand.

**Cauliflower:**  Add For green heads, grow broccoflower.

Endive:  Add Well-adapted to cooler months.

Kohlrabi:  Add Use fresh or cooked.

Mustard:  Add Broadleaf type requires more space.

Onions:  Add Bulbing onions may be seeded in the fall, then transplant in early spring (Jan-Feb).

Parsley:  Add Grow like regular parsley.

Peas, English:  Add be sure to trellis.

Potatoes, Irish:  Add Remove tops 2 weeks before digging to toughen skin for storage.

Radish:  Add Inter-crop summer type with slow-growing vegetables to save space.

Spinach:  Add Malabar spinach is a vining, more prolific type easily grown in Florida.

Strawberry:  Add Grow as an annual crop using disease-free transplants.

**Change 4. Footnotes**

Add Footnote 6. For information on Malabar spinach and other less-frequently grown vegetables, get a copy of Bul. SP-40, Manual of Minor Vegetables.

Earlier Guides - Those of you who might have stock-piled earlier editions of Circular 104 (Revised 1987 and 1990) may continue to use them as handouts. While these editions do not have the updated information, they contain no glaring errors.

It is hoped and anticipated that the new "for-sale" revised edition (104R) will be ready for the 1992 spring gardening season.

(Stephens, Vegetarian 91-12)