Vegetarian 91-9

September 13, 1991

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I. NOTES OF INTEREST

A. Vegetable Crops Calendar.


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

March 9-12, 1992. Harvest and Postharvest Handling of Horticultural Crops. Tour of Central and South Florida. (Contact Steve Sargent).


II. COMMERCIAL VEGETABLES

A. USDA Tomato Size Standards Revision.

Beginning this fall packing season (October 1, 1991), revised size standards will be implemented for fresh market tomatoes. Thus, for the first time since the 1981-82 season, size standards regulated by the Marketing Policy of the Florida Tomato Committee (FTC) will be identical to the USDA Grade Standards. This was made possible by a compromise in the size standards which will now permit a 1/32 inch overlap between sizes. From the 1982-83 season until last year the FTC permitted a 2/32-inch overlap between sizes, while the federal standard permitted no overlap between the sizes. For this reason tomatoes packed in the FTC regulated districts had to designate sizes as 6x7, 6x6 and 5x6 and Larger. With the new standards, Florida packer/shippers will use the conventional size designations of medium, large and extra large.

The reason for this compromise was based, in part, on the sizing study we performed during the 1987-88 season in cooperation with the FTC and Florida Dept. of Agric. & Cons. Services, Inspection Division (Sargent, et al., 1991. Performance of Perforated - Belt Sizers as Affected by Size Standards for Fresh Market Tomatoes). In this study we found that Florida packers could easily meet size standards with a compromise overlap of 1/32 inch.

The revised USDA size standards are as follows:

Effective October 1, 1991 the US Standards for grades of fresh tomatoes will:

- Require that the size of the tomatoes in any standard shipping container be specified and marked on the container;

- Establish 4 mandatory size designations (small, medium, large, and extra large), each with a 1/32-inch overlap);

- Require that only one of the 4 sizes be included in and be marked on the container; and

- Eliminate the commingling of different sizes within a container.

TOMATO SIZE CLASSIFICATIONS

<table>
<thead>
<tr>
<th>Sizes</th>
<th>Inches</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Min. Diameter</td>
</tr>
<tr>
<td>*Small</td>
<td>2 4/32</td>
</tr>
<tr>
<td>Medium</td>
<td>2 8/32</td>
</tr>
<tr>
<td>Large</td>
<td>2 16/32</td>
</tr>
<tr>
<td>Extra Large</td>
<td>2 24/32</td>
</tr>
</tbody>
</table>

*Small size not permitted in FTC regulated areas.

(Sargent, Vegetarian 91-09)
B. When LB/A Does Not Equal Pounds Per Acre.

The soil test report form is often one of the most misunderstood and abused reports we have. The values (numbers) printed on these forms can easily be misused if the reader does not understand the meaning of the numbers. When this happens, fertilizer programs can be in error.

The common problem we see has to do with assuming that the numbers represent the actual amount of nutrients available to the crop as if the laboratory analysis was conducted on a hydroponic solution. Analyzed nutrients might equal available nutrients in hydroponics but not in soils, even in our sandy soils.

The values on the soil report are an index of the available nutrients and the index must be accompanied by its interpretation e.g. Low, Medium, High. If the soil test procedure is calibrated with field research, then the index will be accompanied by a fertilizer recommendation. In other words, the index provides information on the portion of the nutrient needs that can be supplied from the soil, but the index value does not tell us the exact amount.

Too many times we see individuals using the index value in arithmetic equations to derive a fertilizer amount. The scenario goes something like this:

The soil report (double acid) says 100 pounds per acre of potassium (K$_2$O) in the sample. Note: sometimes the report is expressed as parts per million (ppm) which is doubled to get pounds per acre. For example the report says 50 ppm which would be 100 pounds per acre. The doubling conversion factor comes from the rough rule of thumb that there are 2 million pounds of soil in an acre furrow slice. This conversion factor is so general as to make it worthless for the purpose above. Anyway, back to the arithmetic user. In this scenario the person then takes crop nutrient removal values (or some other value) and subtracts the soil test index to get the fertilizer amount. For example, some published tables of crop nutrient removal values say that tomatoes remove 300 pounds of K$_2$O per acre. Therefore, 300 minus 100 (from the soil test report) equals 200 pounds of K$_2$O to recommend. Right? Wrong! Actually, the index value of 50 ppm K$_2$O (42 ppmK) should be interpreted as medium and receive only 100 pounds of K$_2$O per acre. See Special Series SS-SOS-907 (Notes in Soil Science 38).

From the above, we can see that a wrong use of the soil test index values potentially results in overfertilization. Remember, that Florida soils are not hydroponics. A well calibrated soil test can help determine amounts of fertilizer ..... as long as the soil test is not misinterpreted.

(Hochmuth Vegetarian 91-09)

C. Carrot Production in Florida (Daucus carots).

Florida harvested about 7,900 acres of carrots in 1989-90 with an average yield of 100 cwt/A. Fresh market carrots accounted for 82% of the production. Carrot plantings begin in July and continue at intervals through February. Harvest begins in early October with mini carrots from Everglades muck and ends the middle of June in the Zellwood muck area.

Florida's carrot production is on muck soils. Where California, Washington, Texas, and Arizona carrot production is on mineral soils. Florida has an average yield around 4.8 tons/A while Texas has 9 and California has 21.5. Culls account for greater losses in Florida than other production areas. Florida losses from 10 to 45% with an estimated average of 23% of its carrot production to various types of
culls. Yields of 34 tons/A have been achieved in Florida in small experimental plots when planted during October. October has been found to be the optimum month to plant for higher yields.

The major plant disease in carrot production in Florida is Alternaria blight (Alternaria dauci). Using tolerant varieties along with applications of Bravo, Tri-basic copper, and Du-ter are helpful in its control. Other diseases include Cercospora leaf spot and bacterial blights.

In sandy soil, root-knot and sting nematodes have to be controlled. At present, only Vydate L is available. Other insects attacking carrots are wire worms, cut worms, and leaf miners when the carrots are young.

Weeds are usually controlled by use of herbicides such as Lorox, Roundup, paraquat, and Fusilade 2000. Mineral spirits have been used, but cost and timing are critical to a quality crop.

(White, Vegetarian 91-09)

D. Florida Tomato Institute '91.

On September 4, 1991, the Florida Tomato Institute convened its annual meeting at the Ritz Carlton in Naples, Florida. Over 350 people were in attendance representing seven states and two countries. The morning session concentrated on new developments concerning the sweetpotato whitefly and the associated geminivirus.

Jane Polston spoke on insect transmitted viruses in Florida and presented data from a virus survey conducted in spring of 1991. This data indicated that while the Florida Tomato Geminivirus (FTGV) was found to be the prevalent virus in symptomatic plants, 43% of the samples tested had more than one virus associated with those visual symptoms.

Bob McGovern spoke on alternate hosts of FTGV. McGovern indicated preliminary evidence suggests certain plants may be alternate hosts of the virus: Hairy spurge (Chamaesyce hirta (L.) Millsp.), Spurge (Chamaesyce hypericifolia (L.) Millsp.), Sesbania sp., Water primrose (Lidwigia erecta (L.) Har. & (Lidwigia decurrens Walt.), common bean (Phaseolus vulgaris (L.)), Tomatillo (Physalis ixocarpa Brot.), and Tropical soda apple (Solanum vianum).

Phil Stansly concentrated on management strategies for the sweetpotato whitefly, touching on insecticide resistance, spray materials, application technologies, and field sanitation. His data exhibits a volume of information on spray trials conducted throughout the past year.

Charlie Vavrina presented information on the "new" detergent spray technology from the perspective of foliar injury and plant dry matter accumulation. While efficacious in controlling the whitefly, detergents may be reducing plant dry matter accumulation. The ramifications of this weight loss are being investigated.

Lance Osborne addressed the possibilities of biological control of sweetpotato whitefly, presenting a nice treatise on this specific subject. A fungal pathogen of the whitefly shows some promise and is presently under investigation by U of F and W. R. Grace in a cooperative agreement.

The afternoon session presented information of a more diverse nature touching on tomato transplant conditioning, bacterial spot of tomatoes, Fusarium crown rot of tomatoes, predicting tomato yield loss to nematodes, developments in weed control, tissue testing, and packing line efficiency.

All of these subjects and more are presented in the Proceedings of the Florida Tomato Institute 1991. A 178 page book of the latest developments in the disciplines at work in the tomato industry. As usual the appendices contain the full compliment of Florida Extension recommendations on varieties, fertilizer management, weed
control, insect control, disease control, and nematode control. Proceedings of the 1991 Tomato Institute are available for sale through the SWFREC, P.O. Drawer 5127, Immokalee, FL 33934 (attention C. Vavrina) at a cost of $5.00 plus $1.50 postage and handling ($6.50 total). Checks for the Proceedings should be made payable to SW Florida Vegetable Committee. Allow 3 weeks for delivery.

(Vavrina, Vegetarian 91-09)

E. Bravo 720 Did Not Injure Watermelon Fruit in 1991 Trial.

Applications of the Bravo 720 formulation of chlorothalonil (ISK Biotech Corporation, Mentor, OH 44061-8000) have been reported to cause injury, similar to sunburn, on the surface of watermelon fruit. When the injury occurred, it was usually associated with applications of the fungicide to watermelon crops nearing maturity with sparse vine cover during periods of intense sunlight and high temperature.

Based on information available prior to the 1991 watermelon season, ISK Biotech issued an information bulletin (1) to growers which provided the following guidelines for Bravo 720 use on watermelons: (a) do not tank mix with any other product, (b) do not apply within 21 days of first harvest if periods of intense sunlight and high temperatures are expected, and (c) do not apply within 21 days of first harvest when vines do not provide shading of fruits, or if vines are stressed due to drought.

The objective of this experiment was to determine the effects of weekly applications of Bravo 720, with applications omitted at designated periods before anticipated first harvest date, on four watermelon varieties that differed in rind color and pattern.

'Crimson Sweet', 'Royal Jubilee', 'Sangria', and 'Southern Belle' watermelons were direct-seeded on 11 March in holes punched in the polyethylene mulch at 3 ft. in-row spacing at GCREC, Bradenton. The 30 ft. long plots had 10 plants and were replicated four times in a randomized, complete block design. Weed control in row middles was by cultivation and applications of paraquat.

Bravo 720 treatments were applied weekly at 3 pt/100 gal/acre according to the following schedule:

<table>
<thead>
<tr>
<th>Treatment Number</th>
<th>Number of Applications</th>
<th>Time of Last Application Days Before (-) or After (+) First Harvest</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10</td>
<td>+ 4</td>
</tr>
<tr>
<td>2</td>
<td>8</td>
<td>- 9</td>
</tr>
<tr>
<td>3</td>
<td>7</td>
<td>-16</td>
</tr>
<tr>
<td>4</td>
<td>6</td>
<td>-23</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td>-30</td>
</tr>
</tbody>
</table>
No detectable injury on watermelon fruit was observed that could be associated with Bravo 720 applications. The injury had been associated previously with high light intensity and temperatures in the period immediately preceding harvest. These conditions did not occur in this trial because of overcast skies and frequent showers during the last two weeks of May and in early June. Sparse vine cover, also associated with Bravo 720 injury, did not occur in this trial except in plots that had not received Bravo 720 applications for 23 and 30 days before first harvest.

Early and total yields, average fruit weight, and soluble solids varied among the four varieties included in this trial. This was to be expected since they were representative of different watermelon types. The incidence of hollowheart, however, did not vary among varieties. 'Southern Belle' was more susceptible to gummy stem blight than the other three varieties.

The number of Bravo 720 applications did not affect early and total yield, average fruit weight, soluble solids concentration, and incidence of hollowheart. On the other hand, the incidence of gummy stem blight was significantly greater in those plots that received five or six Bravo 720 applications compared to those that received seven, eight, or ten Bravo 720 applications.

The surface temperature of watermelon fruit greatly exceeded air temperature regardless of whether the fruit was in the shade or sun, and temperature of fruit in the sun exceeded that of shaded melons. Temperature of shaded fruit was similar regardless of variety, whereas considerable difference in temperature among varieties was recorded for fruit in the sun. Temperature had no apparent relationship to rind color or pattern. The rind temperatures from darkest to lightest rinds were 'Southern Belle', 103.8; 'Sangria', 108.4; 'Crimson Sweet', 110.3; and 'Royal Jubilee', 104.7°F. Therefore, the lowest rind temperature occurred in the darkest and lightest varieties.

A relationship between frequency of Bravo 720 applications and the occurrence of fruit injury was not established in this experiment. If previous observations relating the injury to high light intensity and high temperature are correct, the results might be explained by the high frequency of overcast skies during the two week period before harvest. Another possibility is that the observed fruit injury was related to some factor other than application of Bravo 720.

(D. N. Maynard and J. P. Jones, Vegetarian 91-09)

III. PESTICIDE UPDATE

A. Sweet Corn Cultivar - Sulfonyl-Urea Herbicide Interactions.

This past year 2 sulfonyl urea class herbicides have been labelled on corn. The herbicides are Accent (Dupont) and Beacon (Ciba-Geigy). We have received several calls on their use in sweet corn in Florida.

At the present time neither herbicide is labelled for use on sweet corn in Florida. If either was labelled for use with the present labelled rates, I could not recommend their use on sweet corn in the state.

For the past 4 years, we have run 6 replicated trials in Florida on a total of 24 cultivars. Only 2 of the 24 cultivars were classed as completely tolerant (no yield loss - in any trial) to the application of these herbicides over the top of 10 inch high plants. Thirteen of the 24 cultivars had slight to 30% yield reduction in at least one or more of the trials. Eight cultivars of the 24, or 1/3 of the total, had unacceptable yield loss due to application of the herbicide(s). Most of these cultivars had 0 to 30% of the expected yield.

When a systemic soil insecticide, such as Counter was used at planting, almost all cultivars showed a reduction in
yield due to the herbicide application. When a non-systemic soil insecticide, such as Lorsban was used, the reduction in yield due to herbicide was not as pronounced.

If the application of the herbicides were made as a post-directed treatment to cultivars that did not have any granular soil insecticides applied at planting, the safety of the herbicides increased substantially. Only one breeding line showed unacceptable (0%) yield. Over half (14 of 24) cultivars showed complete tolerance, but 9 of the 24 still displayed phytotoxicity and some yield reduction in at least one trial.

Due to these findings, I can not recommend that these herbicides be labelled or used on sweet corn in Florida. Another problem is rotational limitations behind the application of these herbicides. Accent has a 120 day plant back for vegetables and Beacon has an 18 month restriction.

Soil dissipation studies and more work on safety must be done before these herbicides should be used in Florida on sweet corn.

(Stall, Vegetarian 91-09)

IV. VEGETABLE GARDENING

A. National Junior Horticultural Association to Convene in Florida in October.

Approximately 400 youth and adult leaders from 35 states will gather in Altamonte Springs at the Hilton Hotel for the 57th annual convention of the National Junior Horticultural Association (NJHA), Oct. 25-29, 1991.

The NJHA is the only youth organization in America totally dedicated to the promotion of horticulture. The majority of its membership are 4 H’ers and FFA’ers who are routinely involved in projects and activities related to the production, marketing, or use of such horticultural products as fruits, vegetables, turf, flowers and woody ornamental. The association provides a mechanism for these individuals to compete and interact on a national level in a variety of activities and projects.

The NJHA convention brings all of the state winners and top achievers together for final competition and for receiving awards and recognition. It is held in a different state annually. Florida has hosted two previous such conventions, one in 1962 (Miami Beach), and the other in 1971 (Miami Beach).

The present convention is being arranged by a Florida host committee of Cooperative Extension workers under the joint leadership of David Dinkins, Nassau County Extension Agent, and Bob Renner, Marion County Extension agent.

The program is still under development but here is the general outline of main events being drafted.

Friday, Oct. 25.
  P.M. Arrive, register, and check-in hotel.
  P.M. Welcome banquet.

  A.M. Horticultural identification and judging contest.
  P.M. Horticultural Demonstrations, public speaking, and special projects events.

Sunday, Oct. 27.
  A.M. Horticulture workshops.
  P.M. Tour - Cypress Gardens.

Monday, Oct. 28.
  All day - Tour - Epicot Center
  P.M. Awards and recognition banquet.

Tuesday, Oct. 29.
  A.M. Check-out and depart.

Florida will be represented by a host of adults working on various components of
the convention, and by an official delegation of 4 H'ers. These 4-H team members are our state winners in the 4H Horticulture Demonstrations: Allison Clarke and Jan Graves from Duval County, and in the 4H Horticulture Identification and Judging Contest, from Marion County (Amy Williams, Ben Yawn, Tammy Obermark, and Amanda Clark).

Expenses for the aforementioned 4 H'ers are being defrayed by the sponsors of our state 4H horticulture program, which includes the Florida Fruit and Vegetable Association, Nye Brands, and the Florida Department of Agriculture.

Other youth in Florida (thru age 18) may also attend the convention at their own expense. They can participate in as many of the activities as they qualify for. We anticipate and welcome a large number from Florida (4H, FFA, and other) in this category.

All of us connected with this convention and 4H in Florida wish to recognize with appreciation the support provided by the Florida Fruit and Vegetable Association in hosting this national group. This important industry organization is sponsoring most of the cost of the convention not covered by registration fees.

The 57th annual convention should be a good one, and we are looking forward to seeing many of our horticultural associates and friends from around the country.

Anyone wishing to find out how to register for the convention or to receive further information should call either: Bob Renner, (904) 620-3440, or David Dinkins, (904) 879-1019.

(Stephens, Vegetarian 91-09)

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