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I. NOTES OF INTEREST

A. Calendar.

May 18, 1989. Vegetable Field Day, Gulf Coast Research and Education Center, Bradenton (Contact Don Maynard).


July 30 - Aug. 4, 1989. ASHS Convention, Tulsa, OK.


B. New Publications.


II. COMMERCIAL VEGETABLES

A. Pollination of Cucurbits: Cantaloupe, Cucumber, Squash and Watermelon.

Cucurbit plants have separate male (staminate) and female (pistillate) flowers. Male flowers appear on the plants several days before female flowers. The female flower is easily recognized by the presence of a miniature fruit below the flower petals. Pollen from the male flower must be transferred to the female flower for pollination and subsequent fruit development to occur.

Cucurbit flowers open shortly after sunrise and remain open until late afternoon. Accordingly, each flower is open for only a few hours. The period of maximum honey bee - the most common and effective pollinator of cucurbits - activity closely coincides with the period when the flower is open. Honey bee visitation begins an hour or two after sunrise and continues until mid-afternoon. If temperatures are very warm, bee activity may decline about noon. Research on cantaloupe pollination conducted in California showed that bee visitations increased until 10 a.m. and then declined until 3 p.m. when activity almost ceased.

In Florida, research on watermelon at the Central Florida Research and Education Center-Leesburg showed that the number of bee visitations was more important than the length of time that each bee stayed on the flower. Well-shaped, fully expanded fruit occurred following eight bee visitations to a flower. Fruit set was significantly reduced when only four or two bee visitations were made.

Therefore it appears to be necessary to have a sufficiently high honey bee population to insure that each flower is visited at least eight times. How does this translate into hives per acre? Recommendations from various sources range from two hives per acre to one hive per five acres. Under most conditions, however, one strong hive per two acres should result in sufficient bee activity to effect needed pollination. Hives should be spaced around the perimeter of large fields to provide distribution of bees over the entire field. To maintain the health and activity of the bee colonies, pesticide applications to the crop should be made in the late afternoon or early evening when bees are not present in the field.

(Maynard, Vegetarian 89-04)

B. Waxing Vegetables.

The primary reason for waxing vegetables is to improve their lustre and to control shriveling through a better retention of their natural moisture. To a lesser extent, wax coatings also act as
lubricants to reduce surface scarring and chaffing. Commercial formulations of wax mixtures sometimes contain coloring materials which add to the appearance of the vegetable, sprout inhibitors (potatoes), and fungicides which aid in preserving market quality. With the exception of paraffin-dipped rutabagas and excessively waxed cucumbers, the food grade waxes applied to vegetables is applied so thin that it is not necessary to remove it before the vegetable is cooked or eaten raw.

Vegetables that are most commonly waxed are cucumber, tomato, pepper, summer squash, and to a much lesser extent, potato, sweet potato, eggplant, and carrots.

Recently, we have received several calls concerning the safety of ingesting these food-grade waxes applied to Florida vegetables. We have contacted several suppliers of vegetable waxes concerning wax ingredients. All suppliers contacted said their vegetable waxes contain no fungicides (fruit waxes may), and that all materials used are EPA approved. However, a fungicide (orthophenylphenol) is used as a wax preserver but not for the vegetable. One wax label reads "FOOD GRADE TOMATO WAX WITH FUNGICIDE" with ingredients of food grade oils, natural wax, emulsifier, natural coloring and anti-oxidant (orthophenylphenol). Another label "CUCUMBER AND PEPPER LUSTR" contains food grade mineral oil, petroleum wax, artificial color, and orthophenylphenol as wax preservative.

Put in proper perspective, the CUCUMBER & PEPPER LUSTR contains active ingredient (orthophenylphenol) of 2.5% and one gallon of wax should be applied to 75,000 lbs. of produce. The amount ingested per cucumber or pepper consumed would indeed be extremely small. Additives to food-grade waxes applied to vegetables do not pose any danger to the consumer.

(Gull, Vegetarian 89-04)

C. Leaf Sampling for Tissue Analyses.

Leaf-tissue nutrient analysis is a good tool for monitoring our crop’s nutrient status and for diagnosing suspected nutrient deficiencies. Just like soil analysis, the key to good leaf analyses lies in a quality sample. The published book values for interpretation of laboratory analytical results are based on a certain leaf age or plant part. This differs somewhat depending on the source of interpretation information and on crop. Another consideration is for the physical condition of the leaves and whether or not they are contaminated with foliar pesticides or foliar fertilizers. The following are general guidelines that will help secure a good sample under most conditions so that the analyses and interpretations will have meaning.

1. Which leaf? Most critical nutrient values for vegetables are based on analysis of the "most recently matured" whole leaf. "Whole leaf" would include the leaf blade plus the petiole. For crops, such as tomato or potato that have compound leaves, then "whole leaf" means the entire leaf including the main petiole plus the leaflets with their "petiolules". "Most recently matured" means that leaf that has attained near full size. I usually select the leaf that has nearly lost its youthfull light-green color but which has not turned a deep dark-green color. For tomato, this is usually about the 5th or 6th leaf from the tip and will be about 6 to 8 inches in length.

2. What about contamination? When selecting leaves, try to avoid leaves that have been sprayed with nutrient-containing pesticides or foliar fertilizer nutrients. This is especially true for micronutrient analyses. Numbers obtained under these circumstances are largely meaningless. If only a slight
residue is present, the best way to remove it is by wiping the leaves with a cloth soaked in a dilute mild detergent solution. Soaking in detergent or acid solutions often will remove or "extract" nutrients from the leaf.

3. Diseased leaves? Try to avoid sampling leaves that are obviously diseased or decayed. These leaves will not yield valuable information and might rot by the time they reach the laboratory.

4. Handling the sample? Collect leaves into paper bags that are well labeled as to crop, location of crop, date, notes on crop condition, etc. Transfer samples quickly to the lab. If samples cannot be taken to the lab immediately, then it is a good idea to "pre-dry" the samples in a shaded, dust-free, well-ventilated area. Once nearly dry, the samples can be shipped to the lab.

5. Trouble-shooting. When diagnosing suspected nutrient problems, always try to sample "good" and "bad" plants from the field. Comparison of the analytical results will help in pinpointing a nutrient problem if it is the culprit. In addition, it is helpful to have soil analyses run for at least pH, if the problem is suspected to be related to micronutrients. When soil sampling, avoid the fertilizer bands.

6. Helpful information. Try to gather as much additional information as possible. Ask about the fertilizer program, rainfall, weather, irrigation, past field use, etc. Also never neglect to check for other problems such as nematodes or root diseases whose symptoms may mimic nutritional deficiencies.

7. Summary. Plant tissue analysis is a good tool to help us maximize fertilizer management programs. Like soil analysis it could be a waste of time if we don’t spend the time to do it right. It all starts with a good sample.

(Hochmuth, Vegetarian 89-04)

D. Potential Spring Pest Problems.

In visiting growers fields recently, several pest problems have been found. Ants seem to be more of a problem this year in watermelons both on and off plastic. One bare ground field was virtually destroyed by ants feeding. Most watermelon plants were showing signs of thrips damage on the leaves. Prodigious amounts of thrips, primarily the Western flower thrips were found in blackberry blooms around the field.

The Western flower thrips have also been found in strawberry blooms and tomato blooms. High populations of thrips have caused feeding damage on the strawberry fruit. In tomatoes, we have been associating a small feeding scar surrounded by white tissue with the Western flower thrips but has not been confirmed until recently. A graduate student, Victor Salguero, has confirmed the damage using small cages to confine various thrips species with tomato blooms. The damage he is getting from the Western flower thrips is identical to that found in the field. The Western flower thrips, in addition to its feeding damage, can transmit the tomato spotted wilt virus to tomatoes, peppers, watermelons, and other crops.

One other potential problem in tomatoes this spring is two-spotted spider mites. They have been found in several growers’ fields. This is the earliest that they have been found. There are very few products that are registered and effective for mite control in tomatoes.
Growers may want to intensify their scouting programs to try and keep severe outbreaks from occurring. The county extension office should be contacted if help is needed for identification or control recommendations.

(Olson, Vegetarian 89-04)

III. PESTICIDE UPDATE

A. Watermelon Promotion Program

Press Releases 03/31/89. Watermelon producers and handlers approve research and promotion program. Washington, March 31 - Watermelon producers and handlers have voted to adopt a federal research and promotion plan, a U.S. Department of Agriculture official announced today.

J. Patrick Boyle, administrator of USDA’s Agricultural Marketing Service, said that in a referendum conducted in February, a majority of producers (approx. 52 percent) and a majority of handlers (approx. 56 percent) approved the plan. Those in favor of the plan accounted for 73 percent of the volume of watermelons grown or handled by those voting in the referendum.

The plan meets statutory criteria for industry approval, according to Boyle. To pass, the referendum had to be approved by either two-thirds of those voting, or a majority of producers and a majority of handlers accounting for at least two-thirds of the volume of watermelons grown or handled by those voting in the referendum.

Authorized by the Watermelon Research and Promotion Act of 1985, the plan also provides for the establishment of a National Watermelon Board. The 29-member board will be composed of producers, handlers and the general public. Twenty-eight members of the board will be appointed by the secretary of agriculture from nominations originating in the industry; one will be a public member appointed by the secretary from outside the industry. Industry representatives will be divided evenly between handlers and producers.

The board’s responsibilities will include development and recommendation of research, promotion, and advertising projects for approval by the secretary. The board also will oversee a small administrative staff managing the program’s daily work. Projects developed by the board and approved by the secretary will favor no particular production region or variety of watermelon grown in the contiguous 48 states.

The plan allows for the establishment of projects relating to the research, promotion, and advertising of watermelons. Funds to administer the program will be derived from assessments on producers and first handlers of watermelons, Boyle said. The assessment rate, to be recommended by the board and fixed by the secretary of agriculture, can be set at a maximum of two cents per hundred pounds for producers and two cents per hundred pounds for handlers.

All producers of five acres or more and first handlers are required to pay the assessment. A grower of five or more acres of watermelons who also handles watermelons would pay both assessments. However, producers and handlers who do not wish to support the program can obtain a refund upon written request.

(Stall, Vegetarian 89-04)

IV. VEGETABLE GARDENING

A. 1989 4-H Horticulture Institute

The three IFAS horticulture departments - Vegetable Crops, Fruit Crops, and Ornamental Horticulture - are jointly conducting a plant science-oriented
summer camp experience for 4-H Youth (ages 10-18). This year, vegetable crops will be spotlighted. The program focal point for last year's Institute was fruit crops, and next year it will feature ornamentals, all part of the three-year rotational plan.

The 1989 Hort Institute will be held the week of June 19-23, at 4-H Camp Ocala located off Highway 19, 5 miles south of Highway 40, 13 miles north of Umatilla in Lake County. The 60 acre camp is situated on Lake Sellers in the Ocala National Forest. Enjoyable lodging, food, meeting, and recreational facilities are conveniently located in a serene and relaxed environment.

The camp staff includes the year-round regulars and the summer program staff provided through the State 4-H Department. This staff is composed of camp managers, caretakers, cooks, lifeguards, recreation leaders, and first-aid personnel. We rely on them for the day-to-day operational procedures which are essential to smooth, efficient, enjoyable, safe camping. Fortunately they are used to working with groups like ours throughout the summer.

Our Institute staff will have an operational component and a program component. Tom Greenwalt (State 4-H Specialist) heads the operations section, while it is my turn to head the program group. Both of us rely heavily on Kathleen Ruppert and other Institute committee members composed of IFAS specialist and county 4-H/horticulture agents.

Key members of Tom's operations group include Linda Landrum, Volusia County Hort Agent (registrar); Alice Ayers, Lake County 4-H Agent (Dean of Women); and Dan Schrader, Flagler County Extension Director, (Dean of Men). Cabin leaders will come from a group of adult volunteers and older 4-H members. Our program group includes a host of speakers, instructors, and horticulture activity leaders.

Here is a list of the educational events planned for the 1989 4-H Hort Institute:

**Tour**
Vegetable production area closeby to the camp. To be conducted in conjunction with afternoon of fun at Wild Waters (Ocala).

**Activities**

**Classes**
Be a TV Personality
Butterfly Gardening
Chilled Fruits
Composting
Cultivating Cacti
Energimizing Landscaping
Fruit Juices/Snacks
Gardening with Leftovers
Hort Photography
Interiorscaping
Keep Our Earth Cool
Lake Watch
Patio Gardens
Photosynthetically Speaking
Plant Growth Regulators
Shiitake Mushrooms
Soils
Vegetable Print Presses

**Attendance**
County Extension Agents are urged to register participants in The Institute by sending the appropriate forms to the Registrar by May 5, 1989. Again, the Registrar is Linda Landrum, Horticulture Agent, 3100 E. State Rd. 44, Deland, FL 32724 (phone 904/736-0624). Registration fee is $65.00 (non-refundable), payable to: Florida 4-H Foundation.

(Stephens, Vegetarian 89-04)
Prepared by Extension Vegetable Crops Specialists

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