Vegetarian 90-08
August 15, 1990

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I.  NOTES OF INTEREST

A.  Calendar.


August 22-24, 1990.  State Master Gardener Continued Training.  J. Wayne Reitz Union, University of Florida. (Contact Kathleen Ruppert)


B.  Publications.


C.  Low Input Vegetable Production Demonstration.

The Lee County Extension Service, Collier County Extension Service, and Southwest Florida Research and Education Center, working cooperatively, received a $38,000 grant from the Governor's Energy Office to fund a project entitled "Low Input Vegetable Production Demonstration".

The energy conservation demonstration is anticipated to show
direct and indirect energy savings by significantly reducing the application of fertilizer, pesticide and water while maintaining adequate production profit levels.

The project will involve growing a tomato crop followed by a watermelon crop utilizing a drip irrigation and fertigation system. Best management practices including integrated pest management will be used to produce the commercial vegetable crops.

(Vavrina, Vegetarian 90-08)

D. Florida Pepper Institute.

FLORIDA PEPPER INSTITUTE
Palm Beach County Cooperative Extension
531 N. Military Trail
West Palm Beach
October 10, 1990

Morning Session: D. N. Maynard, Moderator

10:00 Welcome - D. J. Cantliffe.
10:15 Performance Of Pepper Varieties. Southwest Florida - C. S. Vavrina East Coast - K. D. Shuler West Central Fla. - T. K. Howe
10:45 Fertility Management For Peppers Grown With Drip And Seepage Irrigation. G. J. Hochmuth.
11:20 Row Covers: Experience And Observations. W. E. Dubois And J. I. Whitworth III.
11:30 Third Party Registrations: Principles And Use For Pepper Growers. C. F. Wilson, Jr.
12:00 LUNCH - Courtesy Of Ciba Geigy And Rohm & Haas.

Afternoon Session: K. D. Shuler, Moderator

1:00 Thrips and Their Management On Peppers. D. J. Schuster.
1:30 Bacterial Spot Management. J. B. Jones.
2:10 Reducing Injury To Bell Peppers During Handling. S. A. Sargent.
2:30 The National Pepper Conference. T. W. Winsberg.
3:00 Adjournment Of The Pepper Institute. Annual Meeting Of The Pepper Exchange To Follow.

(D. N. Maynard, Vegetarian 90-08)

II. COMMERCIAL VEGETABLES

A. Blossom-end Rot: Relation of Calcium Nutrition and Water Management.

Many growers have complained this spring and early summer about blossom-end rot disorders in peppers and tomatoes. Blossom-end rot is manifested by a break down and decay of the blossom-end area of the tomato or pepper fruits. The break-down usually involves a concave shaped necrotic area that will eventually decay due to infestation by bacteria or it may simply turn black from the appearance of a sooty mold fungi growth on the surface of the lesion.

Blossom-end rot is a calcium deficiency disorder of these fruits. The calcium deficiency disorder can be caused by primary calcium deficiency per se or it can be caused by an indirect calcium deficiency brought on by water stress. The disorder is caused by the breakdown of the cells in the tissue due to inadequate calcium supply to the affected area.
Calcium nutrition is closely related to water status in the plant because calcium travels in the plant via the transpiration stream. The leaves are the largest sink for movement of water and calcium, especially newly expanding and rapidly growing leaves on the plant. Fruits, in general, are not transpiring as the leaves are and therefore are less of a deposition sink for calcium. In periods of water stress, the leaves, as large transpiring organs, will receive the largest portion of water and calcium. If this calcium deficiency occurs during rapid fruit enlargement, blossom-end rot is likely to occur. This is one reason we tend to see blossom-end rot on some of the first clusters of fruits on a plant. These plants are rapidly growing, have a large leaf area which is transpiring water, and are at the same time sizing fruits. If a temporary water stress occurs during this early growth, then the fruits are the last ones to receive adequate calcium nutrition.

Calcium is not highly remobilized from the lower leaves to the upper leaves as would be phosphorus or potassium, for example. Therefore, during periods of mild calcium stress, newly developing fruits can not receive adequate calcium from the leaves below them. The calcium must be delivered to the fruits via the water stream. Because calcium is not highly remobilized from the leaves to the fruits, it follows that foliar sprays of calcium are not likely to correct blossom-end rot on tomatoes or peppers. The calcium from these foliar sprays can be delivered to the leaves but it will not move from the leaves to the fruits. It is also unlikely that enough of the foliar applied calcium will be deposited on the fruit to do any benefit.

To control blossom-end rot, there are several avenues growers can use. Obviously, since calcium disorders such as blossom-end rot are associated with water stress, growers should strive to supply adequate water to the plants especially during hot, windy periods when water stress is likely. This was a particular reason for the severity of blossom-end rot during the previous hot and dry spring.

If the soil contains on the order of 300 parts per million or above of double-acid extractable calcium, then there should be enough calcium available from the soil to the plant. If the double-acid calcium index is 300 or above, then additions of extra calcium from either fertilizer, lime, or gypsum will be unlikely to result in a reduction in blossom-end rot severity. If the soil test calcium index is in an adequate range and the water management program is adequate to keep up with the plant demand, then blossom-end rot is unlikely.

We have however seen situations where there was adequate calcium in the soil and the water management program was optimum, yet blossom-end rot still appeared. In these situations, an additional factor was probably at play in causing blossom-end rot. This additional factor is high soluble salt content of the soils. Under situations of very high soluble salt content in the soil, plants have difficulty in extracting water from the salty soil solution. In addition, there could be salt burn damage to the root tips which are responsible for most of the calcium uptake by the plant. As mentioned above, water status of the plant is very important in regulating the calcium nutrition available to the crop. Therefore, situations of high soluble salt content in the soil would be another condition that would predispose plants to blossom-end rot. It is possible that overfertilization, particularly from high nitrogen and high potassium, could play a role in the high salt content in the soils predisposing the plants to blossom-end rot. Growers that have reduced their nitrogen and potassium fertilizer rates have noticed a marked reduction in problems from blossom-end rot.

Although blossom-end rot can be a serious problem in tomatoes and peppers, there are several cultural practices that growers can combine into one management scheme to reduce the likelihood of blossom-end rot problems. These management schemes basically revolve around water management as the
main goal of blossom-end rot control. Maintaining soil calcium in an adequate range is a factor but in the situations this past spring, water stress and high soluble salts were the main predisposing factors for blossom-end rot in tomatoes and peppers.

(Hochmuth, Vegetarian 90-08)

B. The Latest on Controlling Plant Height in the Transplant House.

With the loss of B-9 (daminozide) last June vegetable transplant growers lost one tool they had to control "legginess" in their transplants. Controlling height by temperature manipulation, though highly touted in several trade magazines this past spring, is not an option for the Florida grower. Shaking or brushing plants to reduce plant height shows promise, but the implementation of such a system in Florida's production houses and the possible disadvantage of spreading disease has not been investigated. Height control by moisture stress or nutrient deficiency, though widely employed, can result in crop damage.

Some interest has been generated within Valent U.S.A. and Ciba-Geigy to "register" Sumagic (uniconizole) and Tilt/Banner (propiconizole) respectively for use in vegetable transplants for height reduction. Based on work in Florida, Texas, and Pennsylvania, Valent has submitted a request to IR-4 to review the use of uniconizole in vegetable transplants. Uniconizole is commonly used in the ornamental industry.

Ciba-Geigy is considering pursuing a 24C, special local needs registration (ie. a state label) for propiconizole as a growth retardant for vegetable transplants. Propiconizole is presently registered as a fungicide for rice, wheat, barley and rye.

These materials can effectively replace B-9 (daminozide) when the need to control plant height is necessary as has been shown with tomato from tests conducted in Immokalee transplant houses. Furthermore, if applied properly, neither material appears to affect total yield.

While the particulars are being worked out, you can voice your support by contacting either Dr. John Taylor, Ciba-Geigy, (904-736-1301) or Dr. Jerry Hulbert, Valent U.S.A, (407-682-3553).

(Vavrina, Vegetarian 90-08)

III. VEGETABLE GARDENING

A. 1990 State 4-H Horticulture Contest Results.

Two vegetable related 4-H events were conducted recently during State 4-H Club Congress at the University of Florida, Gainesville. These were the Horticulture Plant Identification and Judging Contest, and the Plant Science Demonstrations.

The first event, Horticulture ID and Judging, was held in the Fifield greenhouse classrooms. Eight counties and 31 senior 4-H members competed in the educational event which tests their knowledge of a wide array of horticultural plants, including fruits, nuts, vegetables, and ornamentals. Participants must also evaluate the quality and grade characteristics of these products in the judging segment.

The other event, Plant Science Demonstrations, was conducted in the Reitz Union. Ten counties participated. In this competition the demonstrators, working in pairs or as individuals, show and tell the audience about an important horticultural practice, such as mulching, grafting, or preparation of a product for marketing.

The results of the two contests follow. The winners of each event will represent our state in the national contests scheduled for Green Bay, Wisconsin in late October, as part of the National Junior Horticultural Association convention. (Note: Florida will host this national convention next year, 1991, in the Orlando area.) We are pleased to
have as our state sponsor for these events and our entire 4-H horticulture program the Florida Fruit and Vegetable Association (FFVA). This organization represents most of the growers and shippers of Florida's bounty of vegetables, citrus, and other fruit crops. Mr. Reggie Brown is our liaison with FFVA.

Results - 1990 State Plant Science Demonstrations.

1st. Jeanne Fugate - Marion Co.*
2nd Jennie Bartels and Lori Spivey - Manatee Co.
3rd Kevin Crowell - Polk Co.
4th Raney Emmons - Volusia Co.
5th Dawn March - Broward Co.
6th Angela Heitmeyer - Leon Co.
7th Clayton Vanderlaan - Palm Beach Co.
8th Amanda Curry - Osceola Co.
9th Janet Jones - Gilchrist Co.
10th Allen Barber - Hardee Co.

* - Represents Florida at NJHA Convention.

Results - 1990 State 4-H Horticulture ID and Judging.

High Individual - Debbie Lane, Marion Co.
1st Place Team - Marion Co.*
2nd Place Team - St. Johns Co.
3rd Place Team - Duval Co.
4th Place Team - Sarasota Co.
5th Place Team - Volusia Co.
6th Place Team - Manatee Co.
7th Place Team - Taylor Co.
8th Place Team - Lee Co.

*Represents Florida at NJHA convention. (Stephens, Vegetarian 90-08)

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