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I. NOTES OF INTEREST

A. Calendar.


II. COMMERCIAL VEGETABLES

A. Florida Tomato Institute.

1989 Florida Tomato Institute
Wednesday, September 6, 1989
Ritz-Carlton Hotel
Naples, Florida

A.M.
9:00 Registration and Coffee

9:20 Welcome and Announcements


10:00 Whitefly Management. D. J. Schuster, Gulf Coast REC, Bradenton.


10:40 Biology and Management of Thrips and Tomato Spotted Wilt Virus. J. E. Funderburk, No. Fla. REC, Quincy.

11:10 Target Spot, Early Blight, Bacterial Spot and Bacterial Speck: Identification and Control. J. P. Jones, Gulf Coast REC, Bradenton.

11:30 Questions and Discussion

P.M.

1:30 Food Safety: The Media Crises for the 80’s. Martha Rhodes, Assistant Commissioner, Florida Dept. of Agriculture and Consumer Services, Tallahassee.

2:00 Reregistration Process and its Potential Impact on Florida Production. D. A. Botts, Florida Fruit and Vegetable Association, Orlando.

2:20 Tomato Breeding Projections for the 90’s. J. W. Scott, Gulf Coast REC, Bradenton.


3:00 Effect of Pruning on Yields, Fruit Weight and Percent Marketable Fruit of 'Sunny' and 'Solar Set'. S. M. Olson, North Florida REC, Quincy.

3:20 Methane Production from Culled Tomatoes. D. W. Williams, Agricultural Engineering Dept., California Polytechnic State University, San Luis Obispo, CA.


4:00 Questions and Discussion

Adjourn

(Stall, Vegetarian 89-08)
B. Why are we concerned about fertilizer nutrient ratios?

I am going to use this article to stir some thought by asking the above question specifically about nitrogen and potassium ratios for tomatoes. I'll go a step further and state that I do not believe ratios mean anything and have no place in our fertilizer programs. There are several reasons for my skepticism on this subject.

First of all, there is a serious problem in the ratio concept since one cannot separate the nutrient rate effects from the ratio effects in a "ratio" experiment. Therefore, any treatment effects could as easily be explained by rate effects as by a ratio effect.

My major skepticism arises from a soil-testing point of view. I have seen too many soils (tomato farms) where the soil could supply a major portion of the potassium crop nutrient requirement for high quality and high yielding tomato crops. This means that there is lots of potassium in the soil of these fields. Therefore, how can it matter when someone applies a 2K:O to 1: N fertilizer material? The ratio is no longer what we thought we were providing the crop. Furthermore, our Florida soils are not hydroponic in nature. There is a lot of soil chemical reactions going on that affect nutrient availability and, as a result, I can not believe that our special-ratio fertilizer is still our special-ratio fertilizer after we apply it to the soil whether by broadcasting or by banding.

A third factor is that any research that I know of on the relation of nutrition to tomato yield and fruit quality ascribes much of the effects to factors other than nutrition. There might be a potassium rate effect but not ratio. In fact, some of the early work in Florida (on which I assume current fertilizer ratio theory is based) points out the importance of the environment in the disorder of study (gray wall). During the last few seasons several of us from Gainesville, along with several county agents have been studying N and K for several vegetable crops, including tomato. We have had a difficult time coming up with simple K rate effects much less anything that has to do with "ratios".

I believe we need to re-examine this ratio philosophy in light of real, hard research data. In this respect, I do not think the ratio idea can stand up. The philosophy flies in the face of soil testing because it disregards the K that we know exists in Florida soils. The theory also forces growers to purchase more K than they need. For a reasonable N rate of 200 pounds per acre (tomatoes), the grower must use in the area of 400 pounds of K:O. We know of situations where 400 pounds of N are used commercially. This means that 800 pounds of K:O are required by the ratio concept. This could be the source of some of our soluble salt troubles!

Yes, I am skeptical but not totally close-minded. If anyone has data that can irrefutably support this ratio concept, I'd like to see it. Otherwise, let's start teaching growers the soil-testing way and get away from the ratios.

(Hochmuth, Vegetarian 89-08)

C. Virus in the plant house and the field.

Virus in the plant house can be devastating for the grower. Viruses can be transmitted mechanically, via insect vectors, or come in on the vegetable seeds themselves. Mechanical transmission is not a major route of transmission, however tobacco mosaic virus (TMV), potato virus X & Y, and tobacco etch virus can be spread mechanically. TMV has been reported to retain its virulence for up to 50 years in dried leaf samples! TVM can be neutralized by dipping hands in milk or hydrated phosphate detergent before handling transplants.

Virus contaminated seed is a consideration notably for bean mosaic, blackeye cowpea mosaic, cucumber mosaic (CMV), and lettuce mosaic. Many vegetable crops can become infected with CMV (including Solonaceous fall transplant crops) but
transmission is generally by aphids in the field. CMV has not been a major problem in Florida crops since the early 1970's.

By and large, insects are the most important agents of viral transmission. Insect vector plant house virus is less of a problem than a field occurrence because roqing and a good scouting program in the house can keep virus in check.

Drs. Kucharek and Purcifull have recently cataloged the viruses that have occurred in Florida vegetable crops (pp. 7), and DPI, 1984 edition of the Index of Plant Diseases in Florida lists many possible additional alternate hosts.

A weed control program is important in reducing the possibility of insect transmitted virus in the plant house. A partial cataloging of virus-harboring Florida weed host plants indicates some interesting relationships. Insect transmitted vegetable crop viruses are more likely to be transmitted from a weed within the same botanical family. However, while this is certainly not a rule, cross transmission of grass and broadleaf viruses is rate.

Some species of weeds are capable of propagating several species of virus. Black nightshade, (Solanum americanum L.) and ground-cherry (Physalis spp.), are particularly troublesome weeds in Florida tomato and pepper fields, and may harbor up to four separate viruses concurrently: Tomato Yellows Virus, Tobacco Etch Virus, Potato Virus Y, Tobacco Mosaic Virus.

Other weeds of concern include: cressleaf groundsel (Senecio glabellus), hairy beggarticks (Bidens pilosa) and Virginia pepperweed (Lepidium virginicum) for Bidens Mottle Virus (lettuce, endive, escarole), wandering jew (Commelina spp.) for Cucumber Mosaic Virus (25 vegetables), jimsonweed (Datura stramonium) in Solanaceous crops for Tobacco Etch, Tomato Yellows Virus, and Potato Y Virus, lambsquarters (Chenopodium album) for Lettuce Mosaic Virus (lettuce, endive, escarole), and creeping cucumber (Melothria pendula L.) and balsam apple (Clusia rosea) for Watermelon Mosaic Virus 1 (Cucurbit crops).

(Vavrina, Vegetarian 89-08)

D. Estimating mechanical injury during tomato handling using the instrumented sphere.

Minimizing mechanical injury during handling is one of the primary goals of Florida tomato packer/shippers. Tomatoes experience a number of transfers during typical harvest, handling and packing operations, and each of these transfer points has potential to reduce quality by inflicting bruises, cuts, punctures and abrasions. Recently, a prototype instrument became available which is capable of measuring impact accelerations experienced during handling operations. This Instrumented Sphere (IS) is a battery operated data logger which is 3.5 inches in diameter and has a density similar to that of a tomato. It can be placed on a packing line in order to record impact times and intensities at transfer points in the line. The IS was originally developed at the USDA/ARS laboratory at Michigan State University in East Lansing, Michigan, for analyzing apple handling systems. We purchased an IS to develop a database for vegetable handling systems as part of a cooperative research project involving several research institutions and a variety of horticultural crops.

This past spring season we began a program, 1) to develop a database of impacts at transfer points during tomato handling using the IS; 2) to document actual mechanical injury for a range of tomato handling and packing situations in Florida; and 3) to correlate IS data with actual injury data in order to allow prediction of potential injury sites for packing line using impact values measured by the IS. The extent of mechanical injury was previously described in The Vegetarian (89-07). In this issue we will briefly discuss results of the IS tests.

The IS was run over three tomato packing lines during the spring of 1989. The following procedure was employed during the tests. While the line was running at typical capacity, the IS was activated and placed in the line, beginning
in the bulk bin. It was allowed to flow over several transfer points while the elapsed time was recorded at each point. The IS was then removed and the data was transferred to a portable computer. This procedure was repeated ten times for each segment of the packing line until the entire line was documented. Averages were later taken for the ten runs at each transfer point.

The impact averages as measured by the IS showed that the highest impacts generally occurred where there was a roll or drop onto a metal plate followed by rebound to a roller conveyor; another point was where there was a roll down a steep incline onto a roller. These points included drops to wash brushes, sorting rolls, accumulator belts and cross conveyors. Transfer points which were not as severe were the drops to float tanks and eliminator belts.

The average impact per transfer point measured on the Green Lines for the three packing lines was about 20% lower than the average impact measured on the Pink Lines. This could cause injury since tomatoes showing color are less firm than those which are at the mature green stage and therefore are more sensitive to impacts.

Every point in which a fruit or vegetable is transferred from one type of equipment to another is a potential site for increased mechanical injury. Therefore, the packing lines which cause the least injury are straight, with no major turns during handling, and level, with minimal drops at transfer points. Packing lines should be designed and managed to handle the most injury sensitive crop, in this case, tomatoes which are showing color. For existing lines, transfer points should also be kept clean, smooth and padded over surface protrusions. Brush rolls should be set at sufficient speed so as to provide adequate washing without causing excessive fruit movement and increased fruit to fruit contact. Drop heights and transfer plate angles at transfer points can be lowered. Installation of curtains or power brushes at these sites can also facilitate transfer while reducing mechanical injury.

In further tests in the laboratory and in packinghouses this next season we will attempt to establish IS impact thresholds with actual damage incurred during tomato handling.

(Sargent, Vegetarian 89-08)

III. PESTICIDE UPDATE

A. Pesticide Reregistrations.

According to the provisions of the 1988 amendments to FIFRA, the EPA is mandated to accelerate the reregistration process for previously registered pesticides. Registered uses of pesticides will be lost because of this accelerated reregistration process.

In general, the reregistration process has been divided into 5 phases: (1) Identification, categorization, and registrant notification of active ingredients subject to reregistration; (2) Response from the registrant as to whether or not they intend to reregister the product, identification of data requirements; (3) Submission by registrants of summaries of previously submitted studies with subsequent commitment from registrant; (4) Agency review of phases 2 & 3 and the identification of outstanding data requirements with the corresponding notification and commitment by registrants to fulfill those requirements, and; (5) Agency review of all data and determination of appropriate regulatory action.

IR-4 has mailed a IR-4 Red Alert (Number 5, June, 1989) that contain a listing of all food crop uses which are subject to reregistration.

The Florida Fruit and Vegetable Association has mailed to many of their members an edited list of chemicals and asked for their input and letters of concern to affected chemical companies.

It is believed that many of the food crop uses will be defended by the manufacturers. However, their resources are limited and it is unlikely they will defend all uses for minor use crops such as vegetables or defend older compounds.
which are not patent protected or have lost a major share of the agronomic market.

Rhone-Poulenc, in a letter to me, has already stated that they will not defend amiben.

I have sent a list of compounds up for reregistration that have vegetable labels to agents and specialists in major vegetable producing counties in Florida.

IR-4 has stated that they will assist, where applicable in the reregistration of compounds having the highest priority and greatest need in vegetable production.

Several meetings will be held this fall both for the southern region and for National priority setting phase 2 of the reregistration process is completed.

I plan to attend both meetings for vegetable herbicides. I have and will seek more help in the prioritizing process for reregistration.

Any time between now and the meetings I will be appreciative of any thoughts that anyone may have.

(Stall, Vegetarian 89-08)

IV. HOME GARDENING

A. 1989 4-H Horticulture State Events Winners.

Tuesday, July 25, 1989 was the big day many young 4-H horticulturists had been preparing for and looking forward to for a long time. It was State Events day, held during the week of 4-H Congress, and a chance to visit the University of Florida campus at Gainesville. Everyone knew competition would be tough - much tougher than at earlier training events conducted at State Fair and Hort Institute. Those were mere warm-ups - this was it!

First on Tuesday morning came the Plant Science Demonstrations. Thirteen of the district finalists met heads-on in Fifield Hall, our state's headquarters for horticulture. Subjects for the illustrated talks and demonstrations were as wide and varied as the speaking styles of the youthful participants, ages 14 to 17.

Titles were lively and innovative, but the meat of the subjects were as follows: Soils, Grafting, Transplants, Bonsai, Tree Planting, Fertilizing, Citrus, Herbs, Roses, Christmas Trees, and Tissue Culture.

From the first, "Hello, my name is Susannah Evans, and I'm from Walton County," to the last "This concludes my demonstration, are there any questions?", it was obvious the three graduate students judging the event were really going to be challenged deciding who was the best. But meeting challenges was nothing new to Leah Willis (Fruit Crops), Barbara Poole (Ornamentals), and Tom Wall (Vegetable Crops), so decide they did, and here are the results:

1st Place - Susannah Evans, Walton County, "How to Evaluate Soils for Land Use and Development".

2nd Place - Amy and Leslie Theus, Marion County, "Thoroughbred Trees."

3rd Place - Janet Jones, Gilchrist County, "Bonsai".

Blue Ribbon Awards went to: Eric Kinslow (Manatee), Heather Anderson (Pinellas), Kevin Crowell (Polk), Nicole White (Okeechobee), and Dawn March (Broward). Red Ribbons were awarded to: Steve Forehand (Gulf), Amy Thompson (Jackson), Mark Lare (Brevard), Jenni Meriwether (Seminole), and Jimmy Frazier (Hardee).

We congratulate all these demonstrators on a fine job well done!

Now, for Susannah it will be "on to Baltimore" for the national competition during the National Junior Horticultural Association Convention, Oct. 27-30, 1989. We wish her well.

O.K., the demonstrations were awesome, but check out the identifiers and judges. In the afternoon of that same day, Tuesday, they went toe to toe and green thumb to green thumb in the State Horticulture Identification and Judging event. For the eight official county teams and 27 participants, team coaches had done all they could, and now
it was up to each individual to help their team win.

Fruits, vegetables, flowers, and shrubs were laid out in every direction. Muffled wails and murmurs filled the air: "What could this possibly be? Looks like anthers to me, but from what? Come on, deductive reasoning, where are you when I need you?"

And when the dust finally settled in the new OH greenhouse classrooms behind Fifield Hall, the cream had risen to the top, and Florida had a new State 4-H Horticultural ID and Judging team. Where from? You may have guessed it - Marion County.

The top team was led by the contest's high individual, Ann Yawn, with 825 points; teammates were Leslie Theus (811), Jeanne Fugate (801), and Tobitha Bryant (771). Proud coach Bob Renner, Marion 4-H Agent, will accompany his team to Baltimore and the NJHA convention in October for the National finals. Good luck!

Here are the team placings: (1) Marion; (2) Duval; (3) Sarasota; (4) St. Johns; (5) Leon; (6) Martin; and (7) Orange.

Sponsors are Florida Fruit and Vegetable Association, Florida Department of Agriculture and Consumer Services, and Florida 4-H Foundation. Zellwin Farms also contributes to the training of the teams.

(Stephens, Vegetarian 89-08)

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