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I. NOTES OF INTEREST

A. Vegetable Crops Calendar.


II. COMMERCIAL VEGETABLES

A. Potassium Demonstrations with Pepper in Palm Beach County.

Studies were continued in Palm Beach County to develop data that would enable us to further calibrate the Mehlich-I extracting solution for soil testing in vegetable production. Studies in several counties last year showed that our present interpretation of Mehlich-I soil test indices is set too high. This means that IFAS is currently recommending too much potassium in most situations. Another study was conducted during the winter of 1987-1988 on the Dubois farm in Boynton Beach, Florida. A factorial experiment consisting of 3 rates of potassium (K) and 3 rates of nitrogen (N) was conducted. Results of the N portion of the study were included in last month's Vegetarian.

Plots were single beds, 6 ft. by 20 ft. with 2 rows of peppers per bed. Rows were 18 inches apart and plants were 11 inches apart in rows. In August, 1987, beds were fumigated and the grower "starter" fertilizer applied. This fertilizer consisted of 800 lb/acre of 6-8-6 (N-P₂O₅-K₂O) applied in 2 side bands on bed shoulders. Our fertilizer treatments were applied in a band in the center of the bed to comprise the "hot mix". This fertilizer was made from calcium nitrate, potassium nitrate, and ammonium nitrate. Our K rates were 48, 110, and 170 lb/acre total K₂O, while the growers total K₂O rate was 416 lb/acre. (Note: our 48 lb. treatment consisted of K₂O from the "starter" fertilizer only.) Beds were on 6-foot centers and fertilizer rates were calculated on basis of 7260 linear bed feet of crop per acre. Pepper hybrid PR 7594 (resistant to bacterial spot) was seeded with plug-mix on September 3, 1987, and hills were thinned to 2 plants per mulch hole. Plants were staked and tied.

Plots were harvested 6 times from November 30 through February 18 with fruit graded according to USDA standards. For comparisons, we included 2 additional treatments. One of these was 'PR7594' at the grower fertilizer rate (336 lb./acre N and 416 lb./acre K₂O). The other treatment consisted of harvesting plots within the grower's field which were 'Early Cal Wonder' cultivar at 336 lb./acre N and 416 lb./acre K₂O. There was no significant K rate effect on total marketable yield (Table 1). Preplant (prefertilization) Mehlich-I index was 60 ppm for this soil which we are currently interpreting as medium-low and are recommending 105 lb./acre K₂O. Our results show that
applying only 48 lb./acre K\textsubscript{2}O did not result in reduced yields. These data, along with results from last years study clearly emphasize a need to revise our Mehlich-I calibration.

(Hochmuth, Shuler, Veg. 88-07)

Table 1. Main effects for potassium rates in Boynton Beach study, 1987-1988 winter.

<table>
<thead>
<tr>
<th>K\textsubscript{2}O (lb./A)</th>
<th>Harvest date</th>
<th>Marketable yield (25-lb bu/A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Center band/total</td>
<td>Nov. 30</td>
<td>Dec. 15</td>
</tr>
<tr>
<td>0/48</td>
<td>487</td>
<td>406</td>
</tr>
<tr>
<td>62/110</td>
<td>464</td>
<td>416</td>
</tr>
<tr>
<td>122/170</td>
<td>459</td>
<td>406</td>
</tr>
<tr>
<td>368/416</td>
<td>424</td>
<td>408</td>
</tr>
<tr>
<td>368/416*</td>
<td>449</td>
<td>439</td>
</tr>
</tbody>
</table>

*'Early Cal Wonder' in commercial field.

B. Soluble Salt Readings Can Not Be Used to Make Fertilizer Recommendations.

Many people use words which seem to fit but may be interpreted differently by the audience. Here are two such definitions to prevent misunderstanding.

**Electrical conductivity**

Electrical conductivity is the actual measurement made by an instrument which quantifies the ability of a solution to transport an electrical charge. The resulting value is related to the type and quantity of ions which are dissolved in the solution. When discussing this measurement, the term electrical conductivity is preferred. Units of this measurement are expressed in decisiemens/meter (dS/m) or millimhos/centimeter (mmhos/cm).

This term is often used interchangeably with "soluble salts."

**Soluble salts**

A soluble salts value is an attempt to convert an electrical conductivity reading into a measurement of the salt concentration (parts per million (ppm)) in the solution. Since electrical conductivity is a measurement of the solution's electrical conductance only, such a conversion is at best an estimate. No information about the chemical species (Ca, Mg, K, ?) present in solution is available from the electrical conductivity measurement. An average set of ions, such as Ca, Mg, K, nitrates, chlorides, etc., must be assumed for the conversion to soluble salts. Soluble salts is a term which we should phase out and replace with electrical...
Soluble salts values are often used as a basis for fertilizer-management decisions. This use is incorrect, since the electrical conductivity test does not provide ANY information about which nutrients are present and which might be needed. Additional testing, using a calibrated soil-test kit, must be made before intelligent fertilizer decisions can be made.

Soluble salt measurements can help in double-cropping situations to aid in decisions on where in the bed (relative to old fertilizer band) to place seeds or plants to avoid soluble salt damage for the second crop. Critical soluble salt levels have been published for this purpose.

(Hanlon, Hochmuth, Veg. 88-07)

C. New Form Releases on the Way.

The Extension Soil Testing Laboratory (ESTL) will be sending new forms to county extension offices in the near future. These forms are a result of an upgrade in methodology of several tests offered by the ESTL. The following list indicates the forms which should be at county extension offices during June.

Container Media Test Information Form. This new form will replace the Greenhouse and Potting Media forms. There will also be a new report form including updated interpretations.

Producer Soil Test Information Sheet. This new form will replace the current form of the same name. The new form has an updated crop-code listing. When the new forms arrive, please dispose of the outdated forms to prevent incorrect crop code selection by your clients.

Landscape and Vegetable Garden Soil Test Information Form. This form will replace the older Home Lawn and Garden form. The new form has updated crop codes suited with more information about soil testing and its uses for home horticulturists. When the new forms arrive, please dispose of the outdated forms to prevent incorrect crop code selection by your clients.

Pine Plantation and Pine Nursery Soil Test Information Sheet. This form replaces the Forest and Forest Nursery Soil Tests form. Substantial changes regarding appropriate soil sampling need and methods are described on this form. When the new forms arrive, please dispose of the outdated forms to prevent incorrect crop-code selection or soil-sampling errors by your clients.

(Hanlon, Veg. 88-07)

D. Ken Shuler Receives National Recognition.

The National Association of County Agricultural Agents, along with Dow Chemical Company, select one County Extension Agent from each state annually to go on an all expense paid, ten-day tour to see the latest in agricultural practices. Ken Shuler, Extension Agent for vegetable crops in Palm Beach County, has been selected as the person from Florida to attend the tour in 1988. The focus will be on agriculture in the state of Colorado this year.

Ken Shuler was selected in 1987 as the Outstanding Agent in ten south Florida counties for his work with vegetable producers in Palm Beach County.

Ken has been employed as an Extension Agent in Palm Beach County since July 1976. During this time he has served as a director on the board of the Florida Association of County Agricultural Agents. He presently serves as a director for the Florida Chapter of Epsilon Sigma
Phi, the national honorary Extension fraternity.

(Maynard, Veg. 88-07)

III. PESTICIDE UPDATE

A. Fusilade 2000 Label for Use on Sweet Potatoes and Yams.

Fusilade 2000 has received supplemental labeling for use on sweet potatoes and yams. Apply as a ground application with sufficient spray volume and pressure to ensure complete coverage of target grasses. Apply to actively growing grass weeds before they exceed the recommended growth stages shown on the label. Do not apply if rainfall is expected within 1 hour. Depending on grass species, rates are 12 to 32 fl. oz/A product (.09 - 0.25 lb ai).

Do not apply a total of more than 96 oz (0.75 lb ai) of Fusilade 2000 per acre per season. Do not harvest within 55 days of application. Do not plant rotational grass crops such as corn, and sorghum, within 60 days after last application.

All application directions, restrictions, and precautions on the EPA-registered label are to be followed.

(Stall, Veg. 88-07)

B. Special Local Needs Labels for the Use of Gramoxone Super (Paraquat) for Melons and Lettuce in Florida.

Two special local needs labels (24C) have been regenerated and upgraded for the use of Gramoxone Super (Paraquat) in Florida for kill of emerged annual broadleaf weeds and grasses and for top kill and suppression of emerged perennial weeds.

Melons: Preplant and Preemergence Use: Apply 2 1/2 to 5 pints (0.47 to .94 lb ai) per sprayed acre as a band treatment over the crop row, or as a broadcast treatment prior to, during or after planting - but before emergence of the crop.

Postemergence Directed Spray: Apply 2 1/2 to 5 pints per sprayed acre. Apply with conventional ground equipment directing spray between the rows and use shields to prevent spray contact with crop plants.

Apply 40-80 gallons of spray mix per acre. Add a non-ionic surfactant at 8 fluid ounces per 100 gallons of spray mix. Do not apply more than 3 applications per crop season.

Lettuce: Postemergence Directed Spray: Apply as a directed spray using 2 to 2 1/2 pts (.38 - 0.47 lbs ai) per sprayed acre in 40-70 gals spray mix. Apply with conventional ground equipment directing spray between the rows and using shields to prevent spray contact with crop plants. Add a no-ionic surfactant at 8 ft oz per 100 gals of spray mix. Apply when weeds and grasses are succulent on weed growth is 1 to 6 inches high. Weeds and grasses emerging after application will not be controlled. Do not allow spray to contact lettuce plants as injury or excessive residues may result. Outer leaves should be stripped at the time of harvest. Do not apply where Gramoxone Super has been used as a preplant-preemergence spray. Labeling must be in the possession of the user at the time of application.

(Stall, Veg. 88-07)

C. Special Local Needs Label for Lannate L (methomyl) for Use on Chinese Broccoli.

A special local needs label (24-C) has been granted for the use of Lannate L on Chinese broccoli to control cabbage lopper,
imported cabbageworm and diamond back moth in Florida. Apply 1 to 4 pints Iannate L per acre in sufficient water (ground application only) to obtain thorough coverage. Add a wetting agent to the spray solution. Repeat at 5-7 days intervals as needed. Do not apply within 3 days of harvest. The label must be in possession of the user a time of application.

(Stall, Veg. 88-07)

IV. Whitefly - a Current Insect Pest in Florida Gardens.

As if Florida home gardeners didn't have enough pest problems to bother their vegetables, a new insect pest has reached the scene this past season. Whitefly was the worst problem I had with my spring garden tomatoes in 1988, and from calls and contacts around the state, it appears to have reached rather serious proportions everywhere.

Its accepted common name is sweetpotato whitefly, (Bemisia tabaci Gennadius), but I suppose you could call it tomato whitefly when it attacks your tomatoes. It is not really a new insect, having been around Florida for a hundred years, but it has just recently become a pest of consequence. According to reports, this whitefly attacks at least 500 species of plants including such vegetables as tomato, eggplant, pepper, cucumber, melons, squash, and snapbeans. Many ornamentals, particularly poinsettias, are susceptible and bothered by the sweetpotato whitefly.

Last year (1987), D. J. Schuster and J. F. Price, researchers at the Gulf Coast Center at Bradenton, gave a thorough report on this new pest of tomatoes. I am utilizing much of their information for this article.

What I first observed, and what most gardeners see, are yellowing weak-looking tomato plants, usually at the time the first few hands of fruit are setting. Brushing aside the leaves with a flick of the hand sends a cloud of the tiny whiteflies into the air. A close look at the leaves reveals yellow chlorotic spots scattered over the upper leaf surface, and a host of flattened, oval colorless nymphs on the underside.

The whitefly adults are small insects about 1mm long with pale yellow bodies and white wings. They resemble small flies but are more closely related to aphids since they have piercing-sucking mouthparts. Adults prefer the younger leaves and deposit minute, cigar-shaped eggs on the undersides of these leaves. The eggs are attached to the leaves by short stalks.

The immature stages are usually called nymphs and also have piercing-sucking mouthparts. The newly-hatched nymphs have well-developed legs and are the only mobile nymphs. After finding a feeding site on the lower leaf surface, these "crawlers" attach to feed and usually do not move again. A chlorotic spot appears on the upper surface above each feeding site.

The subsequent three nymphal stages appear as flattened, oval scales and are immobile. The final immature stage (pupal) is more convex and elliptical and has large (for them) red eyes. The developmental time from egg to adult at 80°F on tomato is about 4 weeks. Thus, the pupal stage is found usually on older leaves.

In addition to sucking sap, the sweetpotato whitefly is a known vector of many virus diseases in other areas. Fortunately, no viruses in Florida are known to be transmitted (as yet).

Control of the whitefly is still under study. So far the
insecticides found to be most effective in limited tests, and available to home gardeners for non-restricted use are: Thiodan, Lindane, and Cygon. White-fly sticky traps are sold for this purpose, but their effectiveness is not fully established.

Biological control is under study also. So far, about 25 species of parasites and 15 species of predators are recorded. In addition, the use of reflective mulches may prove helpful in reducing damage from this new pest to home garden tomatoes.

(Stephens, Veg. 88-07)