Vegetarian 84-10
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I. NOTES OF INTEREST

A. Vegetable Crops Department Faculty Changes

There have been several recent changes in faculty appointments in the Department.

Resignation:
Steve Kovach resigned from his Extension Water Management Specialist position on June 29. Steve is now in Pakistan as a Water Management Specialist on a USAID-funded project. We wish him well in this new endeavor. This position, located at the Gulf Coast REC, has been transferred to the Agricultural Engineering Department, and they are in the process of filling it now.

Reassignment:
George Marlowe has requested reassignment from his Extension Vegetable Specialist position to Plant Science Coordinator with the USAID-UF project in the Camaroons. George is now involved in French training and orientation in preparation for departure about January 1. He will be missed but we are sure that he will make major contributions in this assignment.

Appointments:
J. K. Brecht was appointed as Assistant Professor, Postharvest Physiology on June 1, 1984. Jeff will have undergraduate teaching, graduate advising and research responsibilities. He is a native Californian with a BS degree from Whittier College and a PhD from the University of California-Davis. We welcome Jeff to Florida.

G. J. Hochmuth was appointed as Assistant Professor and Vegetable Extension Specialist on August 24, 1984. He will coordinate vegetable extension programs in Districts II and III and will have state-wide responsibilities for fertilizer and soil management recommendations. George is a native of Maryland and received his BS at the University of Maryland. He earned his PhD from the University of Wisconsin and has been on the faculty of the University of Massachusetts since 1981. We are very pleased to have George join our Florida vegetable extension team.

C. E. Vallejos has been appointed Assistant Professor, Physiological Genetics. He will join the Department about February 1, 1985. Eduardo is a native of Peru and received his BS from La Molina. He earned his MS and PhD at the University of California-Davis and completed postdoctoral training there, Stanford University, and New Mexico State University. We welcome Eduardo to the Department.

(Maynard - Veg. 84-10)

B. New Publications

Pepper Variety Trial Results, IMM 84-4 by P. H. Everett and K. A. Armbrester is available from the Immokalee AREC, Route 1, Box 2G,
C. Vegetable Crops Calendar

1. Nov. 4-7, 1984. Florida State Hort. Soc. (FSHS) Doral Hotel, Miami Beach, FL.

2. Nov. 6, 1984. Vegetable Industry Breakfast, FSHS meeting, Doral Hotel, Miami Beach. The breakfast is held to increase communication and fellowship among researchers, growers, shippers, allied industry, and other professionals concerned with Florida vegetables. Tickets for the Tuesday breakfast will cost $11.00 per person, available near the FSHS registration desk or from Vegetable Crops staff. Please plan to attend.

3. Nov. 29, 1984. Annual Allied Industry workshop. 9:30 a.m. - 3:30 p.m. Manatee County Extension Office, 1303 17th st. - Palmetto, FL. Person in charge: Dr. Phyllis Gilreath (813) 722-4524.


5. February 6 - Strawberry Field Day. 2-5 p.m. Dover AREC (Hillsborough County) Dover, FL.

II. COMMERCIAL VEGETABLE PRODUCTION

A. Florida Strawberry Production - Current Situation

The Crop Reporting Board, USDA recently released data on the 1983-84 strawberry production season. As expected, the devastating Christmas freeze drastically restricted yield per acre and total production. The freeze also greatly restricted production during the January-February period when prices are usually at their highest. Consequently, the seasonal price was substantially lower than in 1983. Lower yields, production and
prices, all contributed to the lower crop value in 1984.

**Area, Yield, Production and Value of Florida Strawberries in 1983 and 1984**

<table>
<thead>
<tr>
<th></th>
<th>1983</th>
<th>1984</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planted Acres</td>
<td>5,400</td>
<td>5,200</td>
<td>- 200</td>
</tr>
<tr>
<td>Harvested Acres</td>
<td>5,400</td>
<td>5,100</td>
<td>- 300</td>
</tr>
<tr>
<td>Yield per Acre (cwt)</td>
<td>190</td>
<td>170</td>
<td>- 20</td>
</tr>
<tr>
<td>Production (1000 cwt)</td>
<td>1,026</td>
<td>867</td>
<td>- 159</td>
</tr>
<tr>
<td>Value per cwt</td>
<td>$51.20</td>
<td>$44.70</td>
<td>-$6.50</td>
</tr>
<tr>
<td>Total Value ($1000)</td>
<td>$52,531</td>
<td>$38,755</td>
<td>-$13,776</td>
</tr>
</tbody>
</table>

Despite a very disappointing season, Florida maintained a distant, but strong second place in national strawberry production. California continued as the most important strawberry producing state with 13,300 acres, an average yield of 570 cwt/acre and a total crop value of about $309 million. Oregon was the third most important strawberry producing state with 6,600 harvested acres, an average yield of 92 cwt/acre and a crop value of about $15 million. Other important strawberry producing states in 1984 were Michigan, Washington, and New Jersey.

With transplanting for the 1984-85 crop in progress, it is too early to speculate on the future. However, good growing weather will be extremely important in helping the industry recover from the 1983-84 season.

(Maynard - Veg. 84-10)

**B. Alternative Fungicide Programs for Snap Beans Going to Canada**

Snap beans shipped from Florida, entering Canada with residues of ethylene bis-dithiocarbamate (EBDC) greater than 0.1 ppm are considered to adulterated and are returned. (See Vegetarian 83-05). The commonly available EBDC fungicides include maneb, mancozeb and zineb. During the "rust" season these are usually tank mixed with sulfur for increased efficacy, and sprayed every 5-7 days. The low Canadian tolerance eliminates full season EDBC field use on Florida beans since growers cannot determine the final destination of their beans after selling to brokers. A substantial portion (10 - 13%) of beans go to Canada.

Ken Pohronezny, Joyce Francis and James Reynolds have studied alternative control programs compatible with Canadian fungicide tolerances (TREC Research Report SB 84-1, see "New Publications"). In their tests they compared chlorothalonil (Bravo 500) at 2 rates (1.25 and 2.5 lb ai/A) Mancozeb + Sulfur switched to chlorothalonil at flowering, 2 rates of Bitertanol (Baycor 50wp at 0.125, & 0.25), and Triadimefon (Bayleton 50 wp at 0.125 and 0.25 lb. ai/A). Triadimefon and Bitertanol are not registered for the crop at this time.
Their data showed that all fungicide treatments reduced rust levels. For the most part, using mancozeb and sulfur up to flowering and then switching to chlorothalonil as a weekly spray was statistically equal to mancozeb and sulfur treatments.

For the mancozeb/sulfur full-season treatments, Canadian tolerances of 0.1 ppm EDBC were exceeded for every residue sample. When mancozeb/sulfur was discontinued in favor of 2.5 lb ai/A chlorothalonil at flowering, the Canadian tolerances were never exceeded.

The approximate comparative costs per acre per crop season for the several labelled treatments as figured by the authors were:

- 2.5 lb. ai Chlorothalonil only $76.14/a
- 1.25 lb. ai Chlorothalonil only $38.07/a
- mancozeb/sulfur tank-mix only $25.56/a
- mancozeb/sulfur switched to 2.5 lb. ai chlorothalonil at flowering $50.85/a

The authors state that this is a preliminary report and more testing is needed to ensure that the 1.25 ai. chlorothalonil treatment will be consistently efficacious. Therefore they stated "BASED ON CANADIAN RESIDUE REQUIREMENTS, RUST CONTROL, EFFICACY, AND ECONOMICS, USE OF AN EDBC COMPOUND (SUCH AS MANEB) TANK-MIXED WITH SULFUR UNTIL FLOWERING, FOLLOWED BY 2.5 lb. A.I. CHLOROTHALONIL UNTIL THE P.H.I. PRELIMINARILY REPRESENTS THE MOST VIABLE ALTERNATIVE FUNGICIDE PROGRAM FOR BEAN GROWERS SHIPPING TO CANADA."

The results of the sterol inhibitor fungicides are also discussed in the paper.

For a full explanation of factors involved, the research report can be requested from the authors.

(Stall - Veg. 84-10)

C. National Agricultural Plastics Congress

The 18th Congress was held October 2-4 in Asheville, North Carolina and was hosted by North Carolina State University. Workers representing all phases of plastic manufacture and use in agriculture met for 3 days to review present research and discuss future applications of agricultural plastics.

A large portion of the research papers presented dealt with row covers for enhancing early and total vegetable production. Most of the covers discussed were approximately 36" wide and 15"- 18" high covering a single row or bed of plants. They are made of wire hoops and usually a clear polyethylene covering. A newer non-woven polyester or polypropylene material also can be used often omitting the hoops. For automatic venting, the polyethylene covers can be perforated or slitted.

Research from northern states with muskmelons, squashes, peppers, tomatoes and beans showed increases in early and total yields from the use of both poly and nonwoven covers. These experiments have led to widespread use of row covers by growers in the north particularly New England. Row cover research in more southern areas has not been as
consistently favorable. Although early yield is enhanced, total production sometimes is not increased.

Several papers were presented on the use of plastic mulch for vegetable production. Some of the research dealt with the use of row covers in conjunction with the mulch. In order to take advantage of the mulch and row cover effects on production, several associated technologies are being researched. These include irrigation, weed control, and mineral nutrition in addition to the mechanization of mulch and cover application and removal.

In the greenhouse area, papers were presented on increasing the efficiency of plant production with the use of automated watering systems, computer environmental controls, and automatic conveyor bench systems.

Presentations by industry personnel revealed some developing technologies for agricultural plastics including experimental energy conserving greenhouse coverings and sprayable synthetic mulches for greenhouse or field use. Of particular interest is the developing technology of plastic film manufacturing. Newer films will be much stronger and tear resistant than present polyethylene. These new films can be made with less resin thereby reducing the thickness to 0.75 mil. and potentially reduce the cost.

In addition to the research presentations, a trade show consisting of more than 20 exhibitors displayed many agricultural products including irrigation equipment, greenhouse soilless mixes, mulches, and row covers. Machines on display included a fumigator and mulch applicator and a row cover construction implement. A useful liquid injector wheel for fertilizing through plastic mulch also was on display.

The importance of plastics in agriculture is increasing with new developments being made. The increased use of row covers is one of the most rapidly expanding areas. A detailed discussion of row cover technology for vegetable production including results from research in Florida will appear in next month's Vegetarian.

(Hochmuth - Veg. 84-10)

D. Domestic Farming Systems Conference

On September 10-13, a Domestic Farming Systems Conference was held in the Reitz Union sponsored by IFAS, Farming Systems Support Project (FSSP). Speakers from around the country discussed their farming systems projects, their policies, and infrastructure of Farming Systems Research/Extension. Farming Systems embodies the original concept of Extension: that the entire farm family and their needs are addressed, including social, economic and cultural factors influencing the agricultural environment. The Farming Systems project of Virginia Polytechnical Institute, for example, involved the introduction of broccoli production through on-farm trials as a replacement crop for tobacco in Southwest Virginia. Campus Horticulture specialists, agricultural technicians, Extension agents and local para-professionals were involved in "adapting existing tobacco transplanters and milk cooling equipment to high-density broccoli production, developing new market channels for the broccoli
and introducing home broccoli preservation and use in meals.

The North Florida (Suwannee and Columbia Counties) Farming Systems Project involves primarily agronomic crop-livestock systems, although efforts in horticultural commodity production have been discussed. Farming Systems Research/Extension linkage can be facilitated through increased on-farm testing with disciplinary input and involvement of Extension in the trials and results. The FSSP office in McCarty Hall carries slide sets and reference material for anyone interested in their work.

(Delate - Veg. 84-10)

III. Vegetable Gardening

A. Vegetable specimen garden at the University of Florida

During the fall of each of the past-three years (1981-1983), and again this fall, Dr. M. B. Lazin of the Vegetable Crops Department has grown a specimen demonstration garden. It contains over 300 cultivars of approximately 150 different kinds of vegetables.

Mike has reported on his garden in the proceedings of the Florida State Hort. Soc. Vol. 96:167-172. 1983. This is a condensed version of that report with some of my own comments for the purpose of this newsletter.

The main purpose of the garden is to serve as an undergraduate teaching tool. However, it has proven to be useful in research and extension as well. In extension work, we find it very valuable for teaching groups of agents, vo-ag teachers, Master Gardeners, Urban Gardening aides, FFA students, and 4-H members about vegetables. We use the plots for television, video, slides, and photographing, as well as for developing information for publications. Obviously, the plantings of so many common and uncommon types and varieties of vegetables in one location provides us all with the opportunity to see, touch, and taste living specimens throughout their growth cycles.

How the garden was planted

The garden is grown in the fall near Fifield Hall (the Horticultural Science building) on the campus of the University of Florida at Gainesville.

The main planting is organized in 5 rows, 250 feet long spaced 10 feet apart. Plants were spaced 3 to 5 feet within the rows. In early August, 2000 lb./acre of 6-8-8 fertilizer was applied and rototilled into each bed before covering with black plastic mulch. Vegetables were then direct seeded or transplanted through the mulch over the next several weeks.

A separate area along the chain-link fence was utilized for vining crops that required trellising. A third area near the greenhouse was set aside for a permanent planting of perennial species.

Each different vegetable was identified by common and scientific name plainly labeled on an aluminum garden marker.
Labor requirements - Anyone attempting such a display garden should be prepared to provide a considerable amount of intensive labor for all of the cultural requirements of such a wide range of plant types. Harvest labor is not a factor since specimens are best left to be observed. The use of black plastic mulch proved beneficial to most all the crops planted, and greatly reduced the labor requirements for weeding and fertilizing.

Environmental concerns - Most of the vegetables were planted in the garden during August and September when high temperatures and high rainfall combined to make harsh conditions for seedling development. This difficulty was overcome by growing containerized transplants in a peat-lite soil mix in a greenhouse and transplanting most of the crops, including many that are not ordinarily transplanted. For those that were direct-seeded, the plug-mix system was generally used to help in stand establishment.

Diseases and insects - Many of the minor crops were notably lacking in disease resistance. For example, many of the tropical cucurbits grew quite vigorously for two months, then degenerated rapidly due to foliar diseases.

Insect pressures were intense, particularly from caterpillars. These problems were aggravated by a lack of pesticides that are labelled for use on minor crops, and by the inability to spray routinely due to public exposure. However, much was learned about pest tolerance and susceptibility of the many species exhibited.

Concentrated maturity - This characteristic, so valuable in mechanized agriculture, is a distinct disadvantage in a specimen demonstration garden. Some of this was off-set by sequential planting, by planting cultivars of differing maturity dates, and by continuous picking to prolong the setting of fruit.

Adaptability of crops - Although a wide range of species was grown successfully in the garden, certain crops proved to be poorly adapted to the north Florida area, especially perennial plants such as asparagus, rhubarb, and globe artichoke. Some that are adapted, such as okra and watermelon, did not attain full development in the fall planting at Gainesville. However, these and other were included to demonstrate basic plant growth.

Special problems - Certain crops are by their nature not well suited to planting in a specimen garden, at least in the manner planted here. For example, single plants of sweet corn resulted in poor pollination and ear development. Root crops obviously have to be destroyed to demonstrate their productivity, so several plants of each cultivar have to be grown. Special permission must be obtained for some prohibited crops, such as kangkong, due to a possibility that the plant might become a weed or other pest problem.

Vandalism and theft - Such a display garden draws a lot of observers, both authorized and otherwise, resulting in some destruction. Thus, more security measures must be taken than for an ordinary garden.
Seed sources - While it had been anticipated that sources for the minor vegetables would be difficult to find, the vast majority of cultivars were simply ordered from seed company catalogs or at garden supply stores. Some company catalogs specialize in unusual vegetables. However, some hard-to-find planting materials had to be obtained from research centers (AREC), USDA Plant Introduction Centers, private collectors, botanical gardens, and the local produce markets.

Results - Table 1 of Lazin's report lists the crops grown, their scientific names, and their performance rating. Due to the length of that table, it is not included here. The reader is referred to the FSHS proceedings for these results.

(Stephens - Veg. 84-10)

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