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Prepared by Extension Vegetable Crops Specialists

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TO: COUNTY EXTENSION DIRECTORS AND AGENTS (VEGETABLE AND HORTICULTURE)

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VEGETARIAN NEWSLETTER 81-10

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I. NOTES OF INTEREST

A. New Publications


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(D. N. Maynard)

B. VEGETABLE CROPS CALENDAR

November 03-04: IFAS - Industry Conference on Biology and Control of Liromyza Leafminers, Howard Johnson's Motor Inn, Lake Buena Vista

November 05-06: Florida State Horticultural Society, Dutch Inn, Lake Buena Vista

November 16-18: Vegetable Crops In-Service Training, Belle Glade AREC

November 18-19: Vegetable Crops Extension Program Planning, Belle Glade AREC

January 05-07: Joint National Pea and Bean Conference, Hilton Inn, Gainesville


(D. N. Maynard)
II. PESTICIDE UPDATE

New Section 18 Emergency Use Labels Cleared

A. Benomyl on Potatoes for Control of Sclerotinia sclerotiorum.

Benomyl (Benlate) has been exempted for use on potatoes in Dade, Flagler, Putnam and St. Johns counties for the control of Sclerotinia sclerotiorum. The exemption for use expires March 31, 1982. All label requirements must be met and a report summarizing the results of the program must be submitted to EPA September 30, 1982.

Please read the label for rates and timing before use.

B. Permethrin on Celery for Control of Vegetable Leafminer.

Permethrin (Ambush, Pounce) has been granted a section 18 exemption for use on celery for the control of the vegetable leafminer in Florida.

The exemption expires June 30, 1982. Again a summary must be filed with EPA by September 1.

All label restrictions should be followed. Please read the label for rates and restrictions before use.

(W. M. Stall)

III. COMMERCIAL VEGETABLE PRODUCTION

A. The Importance of Early Detection of Crop Damage

Crop damage due to natural causes (hail, lightning, etc.), accidents (herbicide spray drift, mislabeled seed
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lots, etc.); or carelessness (plugged fumigation injectors, phytotoxic tank mixtures of pesticides, etc.) may hit commercial vegetable growers at anytime. Sometimes insurance claims, proper tax determination, or the outcome of costly law suits depend on how well these losses have been documented.

It is almost impossible for county extension agents, extension specialists, and land grant university personnel to avoid involvement in occasional crop damage assessment. The fine line between "taking sides" and impartial evaluation can only be walked with great care, an honest and open attitude, and very careful documentation of the problem. Fortunately, most damage cases can be settled out of court when complete, accurate, and objective loss records are available.

County extension agents should encourage vegetable growers to call for unbiased help as soon as possible in suspected crop loss situations. If university personnel are involved they should try to make a comprehensive analysis of the site, conditions, extent and type of damage as early as possible. Facts, not opinions, are needed. The who, what, when, why and how of each situation should be carefully detailed in the presence of both parties (if two "sides" are involved). A photographic record, field scale maps, laboratory reports and evaluations of other resource personnel can be very useful.

If university personnel are asked to help in the damage assessment they should also have a workable knowledge of what a normal yield, range of acceptable product quality, and a normal or healthy crop looks like. They should also have access to average production and marketing costs, common production practices, and materials used in protection of the crop, and usual planting and harvest dates.

Field personnel with experience in these evaluations usually prepare and present a written or formal account of the visit from their field notes and keep these field notes on file, until the matter is settled. It is very important to record the dates of the visit, when the damage was first noted, and dates and findings of follow-up observations of the field. If it is possible to "quantify" the damage, this
too should be done as soon as possible. For example, the number of damaged plants in 100 foot row segments, repeated at 8 to 10 places in the field, can add a great deal of validity to the loss determination.

It is better to make more measurements than you need than to have some sharp lawyer call your attention to some simple observation you wished you had made. Loss assessment is serious business and the impartial observer can sometimes influence large economic decisions. A fresh foot print in the sand is a lot easier to read than one washed over by a wave.

(G. A. Marlowe)

B. Nutrient Film Technique (NFT) Solution Temperatures Can Affect Growth and Yield of Tomatoes.

Hydroponic tomato production using the nutrient film technique (NFT) was developed in Britain and is now used in Florida as well as many other states.

NFT is a good tool for managing the growing conditions and increasing the productivity of plants grown under these conditions. However, to use the system to its full potential, the grower must regulate the environmental parameters for each particular plant grown.

Referals of problems encountered by growers using the NFT system have historically been during the warmer weather in Florida.

In September, G. A. Giacomelli and H. W. Jones, New Jersey Agricultural Experiment Station, New Brunswick, N.J., presented a paper on 'The Growth of Greenhouse Tomatoes by the Nutrient Film Technique at Various Nutrient Solution Temperatures' at the National Agricultural Plastics Congress in Cleveland, Ohio.
Although this experiment was conducted for greenhouse production for cooler climates, it confirms the observations we have made in Florida and sets a few parameters that should be extremely useful in Florida NFT production.

The authors grew tomatoes using the NFT technique in which the solution temperatures were maintained at 35°C (95°F), 29°C (84.2°F) and 24°C (75.2°F). A control was also included in which the day temperature ranged near 24°C (75.2°F) and dropped to 17°C (62.6°F) at night.

When plants were grown in 35°C solution temperatures, a visually significant detrimental growth was seen after 7 days. The solution temperature was then dropped to 27°C (80.6°F). (If the water temperature was dropped within 10 days the plants would recover).

Initially the 29°C solution presented no growth inhibition, but after 58 days, a reduction of fresh and dry plant weight was apparent with corresponding lower yields.

The growth of plants grown in 27°C solutions were significantly better than the 29°C solutions.

The highest plant weights and yields were from the control with the 24°C solution not significantly different. The conclusion drawn in the paper was that there should be no difference in plants grown in the range of solution temperature from 17°C (62.6°F) to 27°C (80.6°F) based on plant weights. Maximum yields, however, ranged upward from 17°C to 24°C (75.2°F).

More research will have to be done to get the upper limits of solution temperatures for Florida. The point it confirms, however, is that high solution temperatures are detrimental to plant growth. During warm spring, summer and fall weather, the temperature of the nutrient solutions should be monitored. With the translucent nutrient tanks in use, the solution temperatures will rise much above the 27°C (84.2°F) temperatures and in many cases will reach the 35°C (95°F) temperature.

(W. M. Stall)
A. VEGETABLE CONSUMPTION: LONG AND SHORT TERM CHANGES

The trend towards use of more fresh vegetables continued in 1980. Recently released USDA statistics show that per capita consumption of fresh vegetables rose to 129.6 pounds whereas processed vegetable use fell to 52.7 pounds. Comparisons between 1979 and 1980 per capita consumption are shown below.

### Per Capita Consumption of Vegetables: 1979-80

<table>
<thead>
<tr>
<th>Group</th>
<th>1979 (pounds)</th>
<th>1980 (pounds)</th>
<th>Change %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh and Processed</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potatoes</td>
<td>121</td>
<td>116</td>
<td>-4</td>
</tr>
<tr>
<td>Sweet Potatoes</td>
<td>5.7</td>
<td>5.7</td>
<td>0</td>
</tr>
<tr>
<td>Dried Peas &amp; Beans</td>
<td>6.8</td>
<td>6.9</td>
<td>+1</td>
</tr>
<tr>
<td>Fresh Vegetables</td>
<td>124.5</td>
<td>129.6</td>
<td>+4</td>
</tr>
<tr>
<td>Canned Vegetables</td>
<td>54.6</td>
<td>52.7</td>
<td>-4</td>
</tr>
<tr>
<td>Frozen Vegetables</td>
<td>29.0</td>
<td>27.3</td>
<td>-6</td>
</tr>
<tr>
<td>Total</td>
<td>341.6</td>
<td>338.2</td>
<td>-1</td>
</tr>
</tbody>
</table>

As one might suspect the per capita changes from year-to-year are relatively small. However, for the nation as a whole these small changes translate into gigantic amounts of produce. For example, the 4% decline in potato consumption in 1980 represented 11 million cwt on a national basis.

What accounts for such a dramatic shift in consumption? As you will recall, potato growers responded to the disastrously low prices of 1979 with reduced plantings in 1980. Lower supplies during the fall and winter of 1980 resulted in greatly elevated prices and reduced consumption. Florida growers, after a period of low prices, benefited from the short supply in the winter and spring of 1981 with substantially higher prices.
Similarly, lower supplies and higher prices of processed vegetables in 1980 resulted in lower consumption. On the other hand, fresh vegetable supplies were plentiful, prices were lower and consumption increased.

Short-term changes in consumption of vegetables can be explained largely by shifts in supply which drive prices up or down. Supplies as we know, are influenced by numerous conditions, including: economic conditions affecting planting intentions, weather, availability of transportation and others.

Long-term changes in vegetable consumption may also occur. Some of these changes directly affect potential sales by Florida vegetable growers.

### PER CAPITA CONSUMPTION OF VEGETABLES: 1957-59-1980

<table>
<thead>
<tr>
<th>Vegetable</th>
<th>1957-59 (pounds)</th>
<th>1980</th>
<th>Change %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green Beans</td>
<td>2.7</td>
<td>1.4</td>
<td>-52</td>
</tr>
<tr>
<td>Broccoli</td>
<td>0.4</td>
<td>1.8</td>
<td>+450</td>
</tr>
<tr>
<td>Lettuce</td>
<td>20.3</td>
<td>27.4</td>
<td>+35</td>
</tr>
<tr>
<td>Peppers</td>
<td>2.2</td>
<td>3.6</td>
<td>+64</td>
</tr>
<tr>
<td>Cucumbers</td>
<td>2.8</td>
<td>4.3</td>
<td>+54</td>
</tr>
<tr>
<td>Watermelons</td>
<td>16.9</td>
<td>11.4</td>
<td>-33</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>12.4</td>
<td>13.4</td>
<td>+8</td>
</tr>
</tbody>
</table>

Solid increases in lettuce, pepper, and cucumber consumption have occurred during the period, probably due to changes in dietary habits. The popularity of the salad as an important part of the diet has increased consumption of these vegetables but has not greatly influenced the consumption of tomatoes.

One possible explanation for the difference between tomatoes and the green vegetables is that the serving size of tomatoes has greatly diminished over the years. Formerly, tomatoes were used almost exclusively as a 'main-dish' vegetable. Now, as a complement to the salad, they are served as the smallest wedge or even half a cherry tomato. The relative cost of tomatoes in respect to the other salad ingredients may explain its sparse use.
Broccoli consumption, although still comparatively low, has shown a steady and remarkable increase. Some possible reasons for this increase are consumer awareness, availability and changes in dietary habits. Several aspects of the potential for broccoli production in Florida were reviewed in the Vegetarian 80-9.

The precipitous decline in watermelon consumption should be of concern to Florida growers. What accounts for this loss in popularity? Are currently used varieties too large for today's family? Is quality inferior or undependable? Are prices too high? Is supply inadequate? The answers to these questions are critical to the future of the Florida watermelon industry. For additional information see the article by R. K. Showalter, Increasing Watermelon Consumption, Vegetarian 79-4.

Fresh snap bean consumption has declined over the period, but total bean consumption has remained virtually unchanged. In this case, increases in consumption of canned and frozen beans has replaced fresh bean consumption.

Short-term shifts in per capita vegetable consumption can usually be traced to changes in supply that influence price. Long-term consumption shifts may be related to price, dietary habits, awareness, availability, quality, or other factors. Florida vegetable growers are directly affected by shifts in consumption and should take whatever steps possible to encourage increased consumption.

(D. N. Maynard)

V. HOME VEGETABLE GARDENING

A. Gardeners: Active Conservationists and Energy Savers

Most of us who know any gardeners, especially vegetable gardeners, realize just what a nice bunch of folks they are. Good citizenship and gardening go hand-in-hand, according to the results of polls taken by Gardens for All National Gardening Survey conducted in 1980. In evidence, the following article was taken from their booklet, 'The Impact of Home and Community Food Gardening in America'.
"Economists, environmentalists and energy experts have cautioned that Americans may soon have to take steps toward adopting life-styles that discourage waste and excess consumption and encourage conservation and personal productivity.

Family food gardeners have already taken a first step toward a more productive life-style, and realized a number of direct personal and economic benefits from their gardens—savings on food, better tasting food, healthy exercise, relaxation, etc. But, apparently being a vegetable gardener has also a direct relationship to being conscious of the need to conserve and recycle.

Perhaps the most significant finding is that these inflation and conservation activists among the nation's home gardening population are not only found in rural and small town America—their heightened involvement is noticed across the spectrum of community size, including the central cities and suburbia. Of the 31 relevant "life-style" categories tested, in only one—"insulate home"—are non-gardeners even equal to gardeners in terms of participation level.

The proportion of vegetable gardening households that have chosen to assume an active conservation role at home far outweighs those among the non-gardening neighbors, who have taken similar steps."

### Economic/Energy/Environmental Contributions

**Around the Home and on the Highway**

<table>
<thead>
<tr>
<th>In past 12 months, proportion who have:</th>
<th>Gardening Households</th>
<th>Non-gardening Households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turned out lights when not needed</td>
<td>92%</td>
<td>71%</td>
</tr>
<tr>
<td>Bought sale items</td>
<td>89%</td>
<td>58%</td>
</tr>
<tr>
<td>Baking/creative cooking</td>
<td>88%</td>
<td>40%</td>
</tr>
<tr>
<td>Food preservation</td>
<td>87%</td>
<td>33%</td>
</tr>
<tr>
<td>Turned thermostat down</td>
<td>85%</td>
<td>56%</td>
</tr>
<tr>
<td>Heeded 55 mph limit</td>
<td>84%</td>
<td>46%</td>
</tr>
<tr>
<td>Done own sewing/mending</td>
<td>74%</td>
<td>30%</td>
</tr>
<tr>
<td>Done less driving</td>
<td>72%</td>
<td>47%</td>
</tr>
<tr>
<td>Lowered overall house temperature</td>
<td>72%</td>
<td>41%</td>
</tr>
</tbody>
</table>
 Done own home painting 70 27
Bought less on credit 69 44
Less impulse buying 69 50
Budget more carefully 64 47
Done own plumbing 63 55
Eat out less often 58 44
Done own auto repairs 57 28
Closed off unused rooms 55 25
Done own electrical work 50 17
Bought fewer convenience products 49 29
Throwing less away 48 25
Weatherized home 45 23
Bought longer-lasting products 42 26
Lowered water heater temperature 41 24
Wash clothes in cold water 41 29
Re-cycled wastes 32 8
Insulated home 29 30
Sought better gas mileage 28 20
Used alternate heating energy 28 10
Car pooled 21 16
Made general investments 18 12
Bought co-op goods 9 7

*National Gardening Survey By Gallup Poll

Someone has pointed out that perhaps the conclusion from this survey might be that people who exhibit the characteristics described are more likely to have gardens than persons who are less conscientious.

(J. M. Stephens)

B. Know Your Minor Vegetable - Boniatos

Boniatos (Ipomoea batatas (L.) are also commonly called Cuban sweet potatoes. While the generic name is the same as for the common sweet potato widely grown in gardens and farms around the state, boniatos differ primarily by having a distinctive white flesh rather than the characteristic yellow or orange flesh of their edible roots.

Boniatos have been grown throughout the subtropical world for centuries, but have only become an important commercial crop in Florida since the nineteen sixties. This rise in popularity was due to the influx of Cubans into the Dade County area. Since there was always a small Cuban-Latin sector in South Florida, perhaps boniatos have been grown for home use and limited sales for many years before that.
It was established in 1977 that there were about 5,000 acres of boniatos planted in Dade County (see FSHS 90:364). Some fields were 50 to 100 acres in size, while the average was 5 to 10 acres. Undoubtedly boniatos are grown in innumerable backyard gardens within the Latin sector.

Boniatos resemble ordinary sweet potatoes having roundish, oblong roots with fleshy tap-roots. They are not always smooth and uniform in shape and size. Skin color is pale reddish-brown. Underneath is the bright white, very dry flesh.

Boniatos are grown in a similar manner to regular sweet potatoes. They are started by using plants which are called 'draws', 'slips', or transplants, or by vine cuttings. Transplants are grown from roots that have been bedded, with each root expected to produce from 8 to 12 plants. Vine cuttings may be taken from vigorously growing vines at the terminal or middle portions. These 8 to 10 inch long sections are then planted at 12 inch intervals in rows spaced 3 to 4 feet apart.

The average growing season for boniatos is 150 days. There are not specific varieties of boniato, so that there is great variability in yields and performance from one plant to another. Average yields reported in Dade County were 5 tons per acre in contrast to much higher yields reported for regular sweet potatoes in other areas of the state. The value of the boniato industry in Dade County in 1977 was estimated to be 4 million dollars.

Gardeners wishing to try boniatos in their home plots will find it difficult to obtain seeds (roots) or plants. Sweet potato weevils and nematodes are the biggest pest problems with the sweet potatoes. Root diseases are also prevalent.

(J. M. Stephens)