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I. NOTES OF INTEREST

A. Calendar.

October 18-19, 1993. County Agent In-Service Training. Integration of cultural and biological practices in pest management for vegetables. TREC, Homestead. (Contact Mary Lamberts)


II. COMMERCIAL VEGETABLES

A. More Results of Florida Drip Irrigation Survey.

1. The five major crops for which drip irrigation is used:
   1. Tomato .......... 20,000 acres
   2. Strawberry ...... 5,600
   3. Pepper .......... 5,200
   4. Watermelon ...... 3,500
   5. Cucumber ......... 3,000

2. Percentage of drip irrigated crops that are also on polyethylene mulch ... 97%.

3. Percentage of drip irrigated vegetables that are fertigated ..... 86%.

4. Nutrients most often injected ..... N and K.

5. Percentage of tubing that is reusable ......20% and that is disposable ..... 80%.

6. Acreage of drip-irrigated vegetables that is double-cropped ..... 40%.

7. Three reasons for using drip irrigation.

8. Major challenges with drip irrigation.
   1. High cost.
   2. Emitter clogging if not properly managed.
   3. Easy to overwater.

9. Drip irrigation is increasing in Florida.
   (Hochmuth, Vegetarian 93-09)


During the 1991-92 crop year, 12,500 acres of summer squash were harvested in Florida. Average yields were 344 bushels/acre, total production was 4.3 million bushels which sold for $10.65 per bushel amassing a total crop value of almost $46 million. About 40% of the crop was grown in Dade County, but west central Florida accounts for about 12% of the acreage.

This trial was arranged quickly following the loss of a portion of the seedless watermelon trial in the 'storm of the century' in mid-March. The objective was to evaluate performance of some yellow summer squash varieties in west central Florida.

Squash seeds of nine entries were planted in holes punched in the polyethylene mulch at 3 ft in-row spacing on 2 April. The plots were 15-ft long, had five plants each, and were replicated four times in a randomized, complete block design. Weed control in row middles was by cultivation and application of paraquat. Pesticides were applied as needed for control of sweetpotato whitefly (endosulfan...
and esfenvalerate), aphids (endosulfan) and downy mildew (chlorothalonil and metaxy-Chlorothalonil).

Squash were harvested 12 times between 6 May and 1 June. Marketable fruit (U.S. No. 1 or better) according to U.S. grades were separated from culls and counted and weighed.

Early yields, based on the first four harvests, ranged from 19 bushels/acre for 'Yellow Crookneck' to 108 bushels/acre for 'Dixie'. Early yield of 'Pavo' was similar to that of 'Dixie'. Average weight of early-harvested fruit ranged from 0.23 lb for 'Yellow Crookneck' to 0.43 lb for PSX 2287.

Total yields varied from 532 bushels/acre for 'Yellow Crookneck' to 811 bushels/acre for 'Enterprise'. Yield of 'Dixie' was similar to that of 'Enterprise'. Total yields of all entries far exceeded the state average yield of 344 bushels/acre in the 1991-92 season. Average fruit weight for the entire season varied from 0.41 lb for 'Yellow Crookneck' to 0.58 lb for PSX 2287. Five other entries had average fruit weight similar to that of PSX 2287.

Based on these results, the outstanding performance of three well-established varieties: 'Enterprise', 'Dixie', and 'Pavo' results in their continued recommendation for commercial production.

### EARLY AND TOTAL MARKETABLE YIELD OF YELLOW SUMMER SQUASH
### GULF COAST RESEARCH AND EDUCATION CENTER
### SPRING 1993

<table>
<thead>
<tr>
<th>Entry</th>
<th>Early Harvest</th>
<th></th>
<th>Total Harvest</th>
<th></th>
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<tbody>
<tr>
<td></td>
<td>Yield (bu/A)²</td>
<td>Average Fruit Wt (lb)</td>
<td>Yield (bu/A)²</td>
<td>Average Fruit Wt (lb)</td>
</tr>
<tr>
<td>Enterprise</td>
<td>65 bc³</td>
<td>0.40 ab</td>
<td>811 a</td>
<td>0.56 a</td>
</tr>
<tr>
<td>Dixie</td>
<td>108 a</td>
<td>0.35 bc</td>
<td>733 ab</td>
<td>0.54 a</td>
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<tr>
<td>Pavo</td>
<td>96 a</td>
<td>0.33 bc</td>
<td>712 bc</td>
<td>0.54 a</td>
</tr>
<tr>
<td>PSX 2287</td>
<td>38 d</td>
<td>0.43 a</td>
<td>664 b-d</td>
<td>0.58 a</td>
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<tr>
<td>XPH 1733</td>
<td>58 c</td>
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<td>76 b</td>
<td>0.33 cd</td>
<td>589 de</td>
<td>0.55 a</td>
</tr>
<tr>
<td>Yellow Crookneck</td>
<td>19 e</td>
<td>0.23 cd</td>
<td>532 e</td>
<td>0.41 c</td>
</tr>
</tbody>
</table>

¹Early harvest on first four harvests.
²Acre = 4840 lb, bushel = 42 lb.
³Mean separation in columns by Duncan's multiple range test, 5% level.

(Vegetarian, Maynard 93-09)
III. PESTICIDE UPDATE


The value of Florida vegetable production for the 1991-92 season totaled $1.73 billion. According to the Vegetable Summary, Florida Agricultural Statistics Service, 377,175 acres of vegetables were harvested during the 1991-92 growing season, up 5.6 percent from the previous year. 14 major vegetables had a total value in excess of $20 million each. The highest valued crop, as in years past, was tomato, with 42.2% of the value at $728.58 million. Green peppers were worth $170.78 million and strawberries and potatoes valued at $94.7 and $92.9 million respectively.

<table>
<thead>
<tr>
<th>Acreage and Production Value of Florida Vegetables 1991-92</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Planted Acreage</strong></td>
</tr>
<tr>
<td>Snapbeans</td>
</tr>
<tr>
<td>Cabbage</td>
</tr>
<tr>
<td>Carrots</td>
</tr>
<tr>
<td>Celery</td>
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<tr>
<td>Sweet Corn</td>
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<tr>
<td>Cucumbers</td>
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<tr>
<td>Eggplant</td>
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<tr>
<td>Escarole</td>
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<tr>
<td>Lettuce</td>
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<tr>
<td>Green Peppers</td>
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<tr>
<td>Radish</td>
</tr>
<tr>
<td>Squash</td>
</tr>
<tr>
<td>Tomatoes</td>
</tr>
<tr>
<td>Other Vegetables</td>
</tr>
<tr>
<td>Watermelon</td>
</tr>
<tr>
<td>Potato</td>
</tr>
<tr>
<td>Strawberries</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

(Vegetarian, Stall 93-09)

B. Program: Integration of Cultural and Biological Practices in Pest Management for Vegetables.

The In-Service training on integration of cultural and biological practices in pest management for vegetables will be held October 18-19, 1993 at the TREC, Homestead. A preliminary listing of speakers follows:

Mary Lamberts, Dade County Coop. Extension Service - Sustainable agriculture in vegetable production, a current prospective.

T. A. Bewick, Horticultural Sciences Dept., Gainesville. Overview: Biological control in weeds.
R. Charudattan, Plant Pathology Dept., Gainesville. Research in bioherbicides for minor crops at the University of Florida.


Monica Elliot, Ft. Lauderdale REC. Overview: Biological control for plant pathogens.

R. McGovern, SWFREC Immokalee. Research in cultural and biological control of fusarium crown rot and other sand born diseases.

D. Schuster. GCREC - Bradenton. Progress toward a more sustainable pest management program.

Daks Seal. TREC - Homestead. Biological control of thrips, cowpea cucurbia and cultural control of whitefly.

Jorge Peña. TREC - Homestead. Integrated control of broadmite in pepper and melonworms in cucurbits.

K. Pohronezny. Incorporation of cultural and biological control in the Florida IPM program.

The training will begin at 9:00 am. October 18. A program planning conference for 1994-95 will be held from 3:00 - 5:00 October 18, and will continue after 6:00 if needed. October 19, the program will run from 9:00 am to 3:00 pm. For more details, contact Mary Lamberts or Bill Stall.

(Stall, Vegetarian 93-09)

IV. VEGETABLE GARDENING

A. Bottled Vegetables - A 4-H Fun/Learn Project.

Introduction

Agent, here is a 4H project idea. Please pass it on to your 4H agent. Many of them do not get this newsletter.

Here is a 4-H activity that let's you learn about plants - and have fun doing it! Beyond that, it has almost no practical value from a gardening sense. We're talking about "growing vegetables in bottles."

I'm sure you have seen miniature ships completely enclosed in bottles and jugs. "How did they do that," you wonder! Then you realize they must have constructed the ship through the bottle opening - bit by bit, piece by piece. In our project we do the same thing, except instead of a ship, the captive object is a vegetable, such as a tomato, cucumber, or squash. While we are the construction foreman, we let Mother Nature do the building.

The General Idea

You will need to have a young, healthy vegetable plant that produces an edible fruit. You can grow the plant yourself, or work from your family or neighbor's garden. When you have located a young fruit just starting to develop on the plant, gently insert the tiny baby vegetable through the opening and neck of the bottle into the widest central part of the bottle. Take care of the plant, and as the vegetable grows, it will enlarge to its full mature size completely enclosed in the bottle.
Suitable Kinds of Vegetables

Of course, the kind of vegetable you choose for this activity must produce a fruit which will be visible inside the bottle. At maturity, the vegetable fruit should appear obviously too large to have been squeezed into the bottle. Some suggested vegetables are:

- **Tomato** - Use varieties that produce large fruits. Do not use Cherry types.
- **Pepper** - Use Bell varieties. Do not use hot, ornamental types.
- **Eggplant** - Use varieties that produce large fruits. Do not use ornamental types.
- **Cucumber** - Use varieties that produce large fruits. Do not use picklers.
- **Squash** - Any variety will do.

Materials Needed

- **Bottles** - for this 4-H project you must use a non-breakable, clear plastic bottle. The 2-liter size beverage bottles are suggested. Do not use glass which might accidentally break while you are showing off your vegetable. It's okay if the bottom has a colored section.
- **Plants** - Either grow your own, or adopt a plant growing in your garden.
- **String or rubber band** - to secure the growing branch to your bottle.
- **Cotton** - (1 puff-ball of common cotton) to insert into the neck of bottle.
- **Tinfoil** - One sheet approximately 6 x 10 for reflecting heat.

Procedure

1. Prepare your bottle by removing any paper or other label. Then rinse thoroughly. Be sure to clean the outside so that you can easily see through the sides.

2. Select a healthy vegetable plant in the garden and mark it with a big stick so you can find it readily. Or, you may grow a single plant for your specimen. Find the plant by the time it has started to set fruit. The best time is when it first starts to bloom.

3. Locate a branch that has a tiny baby vegetable fruit just starting to develop. The fruit will appear to have a portion of the blossom still attached. **Caution:** Be sure insects have made their visits and that pollination has been accomplished. Usually that will be the case if the fruit has reached 1/2 inch diameter and the blossom has withered.

   Pull off the remaining withered blossom from the end of the fruit(s). If you leave it on the fruit, it could get a fungus and cause the fruit to rot in the damp environment of the bottle.

4. "Isolate" your fruit. This step is particularly important when bottling tomato, pepper, and eggplant. These members of the same family produce their fruits in clusters, so you must "isolate" your fruit from the rest.

   To isolate, use scissors, snips, or a sharp knife to cut away other fruits, leaves and stem growth that would interfere with the insertion of the fruit into the bottle. What you should have left is a slender
stem with the baby fruit attached, long enough to insert 3-4 inches into the bottle.

It is possible and permissible to place the entire cluster of tiny fruits into the bottle. This often renders an interesting and intriguing effect.

With cucumber and squash it may not be necessary to clip away much growth. The fruit-stem is fairly long and bears its fruit singularly.

5. Place the bottle on its side near the fruit to be "captured". Position the bottle so that the tiny fruit (or cluster of fruits) can be inserted into the opening of the bottle. Be sure it is still attached to the fruit stem and the fruit stem to the growing plant.

6. Insert the fruit into the bottle as near to the center as possible. Wrap the cotton ball around the stem loosely in the mouth of the bottle. Keep it loose and fluffy so that the little fruit can breathe as it grows. The cotton will keep out caterpillars and other insects that might want to eat your fruits.

7. Use the rubber band or string to tie the stem to the bottle so that it stays together while the fruit is growing. If string is used, tie it loosely around the stem. If too tight, the stem will be girdled (injured). Note: Tape a piece of tinfoil on top of the bottle to reflect heat.

8. Now wait for your tiny fruit to develop and grow within the bottle. If it falls off, withers, or otherwise dies, remove the bottle and repeat with another fruit. Take care of the mother plant. Observe the growth and enlargement of the fruit daily to keep it healthy and growing.

9. Keep a record of your activity. Complete the record section (final page - not shown here).

10. When your fruit has reached the size and maturity that suits you, snip the stem one inch from the bottle opening. Carefully store the bottled vegetable in a safe place until it is time to exhibit it.

Note: Agents wanting the complete record form contact Jim Stephens.  
(Stephens, Vegetarian 93-09)

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