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Prepared by Extension Vegetable Crops Specialists

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TO: COUNTY EXTENSION DIRECTORS AND AGENTS (VEGETABLES AND HORTICULTURE) AND OTHERS INTERESTED IN VEGETABLE CROPS IN FLORIDA

FROM: J. M. Stephens, Assistant Vegetable Crops Specialist

VEGETARIAN NEWSLETTER 72-10

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THE VEGETARIAN NEWSLETTER

I. COMMERCIAL VEGETABLE PRODUCTION

A. Fruit-Set in Tomatoes

Tomato growers are apt to have problems with poor fruit-set any time during the production season in Florida. The problems may exhibit themselves as: (1) total or partial failure of any flowers to develop into fruit, or (2) set of abnormal fruits which may be misshapen or catfaced and generally not marketable.

The first category is the fruit-set problem experienced most commonly. It is most prevalent in commercial fields in the earlier plantings which bloom in August and September. Generally, the most common cause for poor fruit-set during late summer and early fall is high temperature—either night or daytime temperatures. Optimum night temperature for fruit-set in tomatoes is about 68° to 70° Fehrenheit. Temperatures much below or above the 68-70° F. range for several nights may result in heavy blossom drop in tomatoes. During late August and September, night temperatures may remain above 75° F. for extended periods of time. Under those conditions, fruit-set may be very light but may change dramatically with the onset of more favorable night temperatures. A somewhat similar situation may develop during extended periods of cold weather. However, under cold weather conditions, the problem may show up as "blossom drop," but it may be combined with abnormalities in those fruit which do not abort.

There are many other causes for lack of fruit-set and the development of malformed fruits. These include:

1. Unbalanced nutrition - including excess or deficiency of some of the major and minor elements.

2. Extended periods of warm, windy weather with low humidity.

3. Extended periods of showery, cool, overcast weather during winter and early spring.

4. Insects and diseases.

The problem of poor fruit-set in tomatoes is most prevalent in the large slicing types commonly produced in Florida. The small cherry and paste types do not exhibit fruit-set problems to the degree shown by the larger types.

Poor fruit-set can be explained briefly as a failure in the pollination of the flower or in the fertilization of the ovules (potential seeds) in the ovary (undeveloped fruit). Fortunately, the problem in field-produced tomato crops is temporary in nature and, except for extended periods of abnormal weather, does not generally affect more than one or two hands of fruits on the tomato plant. (Montelaro)

B. Weed Control on Tomatoes Under Full-Bed Mulch Culture

A serious problem in the production of tomatoes under full-bed mulch culture is the control of weeds that may grow in the punched-hole area, through
the mulch itself and in the water furrows. In a talk presented at the South Florida Tomato Institute on September 20, 1972, Mr. D. S. Burgis summarized the research results he obtained in trials conducted in the fall of 1971 and in the spring of 1972 at the AREC, Bradenton, Florida. This work is being continued, but is presented here again in view of the urgent need for information on this problem.

Treatments used by Mr. Burgis were as follows:

1. Herbicide Treatment In-the-row

   Chemical treatments and rates in lb/A broadcast applied as either preplant incorporated at time mulch was laid or as a directed spray into the planting hole immediately after setting were as follows:

   A. Check, hand weeded 2 times
   B. Tillam - 4 lbs. (10G) preplant incorporated
   C. Paarlan - 3 lbs., preplant incorporated
   D. Planavin - 1 lb., preplant incorporated
   E. Diphenamid - 5 lbs., directed through planting hole, immediate post-set
   F. Diph. + Planavin - 5 + 1, directed through planting hole, immediate post-set

   For the fall, 1971 trial, treatments B, C and D were applied on September 20 and covered immediately. Plants were set and treatments E and F were applied on September 23.

   For the spring, 1972 trial, treatments B, C and D were applied on March 3, 1972. The beds were fertilized and covered immediately. Holes were cut and plants were set immediately. Treatments E and F were set at the same time and treated.

2. Herbicide Treatment in Row Middles (Water Furrow)

   Chemicals were applied as (1) granular material covered by or mixed with soil on bed shoulder, or (2) directed preemergence sprays to bare soil along the edge of the newly laid mulch, or (3) as delayed postemergence sprays at time weeds were 1½ to 2 inches high. Chemical treatment, application time and rate (gpa or lb/A) of application were:

   A. Check - weeds not removed
   B. Paraquat - 1 qt. + 2 gals. 11E oil applied postemergence 3 times
   C. Sencor - 1 lb. postemergence
   D. Diph. + Planavin - 5 + 1 lb. postemergence
   E. Vegiben (liquid) - 3 lbs. postemergence
   F. Para. + Vegiben - 1 qt. + 3 lbs. postemergence
   G. Tillam - 4 lbs. applied to false bed on edge of plastic and then covered by regular bed

   For the fall, 1971 trial, treatments C, D, E and G were applied on September 20, whereas treatments B and F were applied on October 6 after plantings were evaluated.
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For the spring, 1972 trial, treatments C, D and E applied as soon as mulch was laid and bedding completed. Treatment G was applied at time mulch was laid but just prior to the throwing of final soil to form shoulder. Treatments B and F were delayed until weeds were 1½ to 2 inches high.

A summary of his results is reproduced here as presented at the Tomato Institute. PLEASE note those items that are marked with numbers (1, 2, 3, etc.) and read explanations and precautions given at the end of the summary.

SUMMARY

Table 1. Two seasons herbicide treatments to tomato plants growing in the row on mulch covered beds showing yield (lbs/A) and mean % weed control

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Fall 1971</th>
<th></th>
<th>Spring 1972</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yield</td>
<td>Weed Control</td>
<td>Yield</td>
<td>Weed Control</td>
</tr>
<tr>
<td>Var. MH-1</td>
<td></td>
<td></td>
<td>Var. 1723-1</td>
<td></td>
</tr>
<tr>
<td>A. Check</td>
<td>163.0</td>
<td>0.0</td>
<td>159.0</td>
<td>0.0</td>
</tr>
<tr>
<td>B. Tillam</td>
<td>140.5</td>
<td>92.5</td>
<td>158.7</td>
<td>93.8</td>
</tr>
<tr>
<td>C. Paarlan</td>
<td>164.6</td>
<td>91.2</td>
<td>189.2</td>
<td>91.2</td>
</tr>
<tr>
<td>D. Planavin</td>
<td>165.5</td>
<td>60.0(a)</td>
<td>160.4</td>
<td>90.0</td>
</tr>
<tr>
<td>E. Diphenamid</td>
<td>164.4</td>
<td>93.0</td>
<td>170.0</td>
<td>87.5</td>
</tr>
<tr>
<td>F. Planavin + Diph. (1)</td>
<td>167.0</td>
<td>93.8</td>
<td>146.0</td>
<td>83.7</td>
</tr>
<tr>
<td>LSD 5%</td>
<td>NS</td>
<td></td>
<td>NS</td>
<td></td>
</tr>
</tbody>
</table>

(a) Improperly incorporated.

No significant differences in yield were found as a result of herbicide treatment when growing tomatoes with the full-bed mulch system. The recommended herbicides produced results comparable to conventional production methods. Chemicals preplant incorporated into the bed and covered showed no phytotoxicity, and generally this method would present less of a problem to the grower than the use of directed postsetting sprays into the planting hole.

Where holes are cut or burned in the mulch, the use of sprays into this opening around the transplant could be recommended. However, when a plant setter (machine) that punches an opening is used, the flaps and scraps of paper around the opening would eliminate this type of herbicide application.

Tillam, Paarlan or Planavin can be efficiently and safely preplant incorporated in a band under the paper.

Table 2. Two seasons herbicide treatment to wheel row middles between tomato plants growing on mulch covered beds showing yield (lbs/A) and mean % weed control

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Fall 1971</th>
<th></th>
<th>Spring 1972</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yield</td>
<td>Weed Control</td>
<td>Yield</td>
<td>Weed Control</td>
</tr>
<tr>
<td>Var. MH-1</td>
<td></td>
<td></td>
<td>Var. 1723-1</td>
<td></td>
</tr>
<tr>
<td>A. Check</td>
<td>163.0</td>
<td>0.0</td>
<td>207.3</td>
<td>0.0</td>
</tr>
<tr>
<td>B. Paraquat (2)</td>
<td>146.8</td>
<td>98.0</td>
<td>202.5</td>
<td>85.0</td>
</tr>
<tr>
<td>C. Sencor (2)</td>
<td>173.9</td>
<td>94.0</td>
<td>204.1</td>
<td>95.0</td>
</tr>
<tr>
<td>D. Diphenamid + Planavin (1)</td>
<td>165.8</td>
<td>93.8</td>
<td>241.8</td>
<td>85.0</td>
</tr>
<tr>
<td>E. Vegiben (liquid) (3)</td>
<td>170.7</td>
<td>60.0</td>
<td>244.7</td>
<td>87.5</td>
</tr>
<tr>
<td>F. Paraquat + Vegiben (1,2,3)</td>
<td>157.7</td>
<td>98.0</td>
<td>220.6</td>
<td>95.0</td>
</tr>
<tr>
<td>G. Tillam (4)</td>
<td>167.9</td>
<td>93.3</td>
<td>206.2</td>
<td>95.0</td>
</tr>
<tr>
<td>LSD 5%</td>
<td>NS</td>
<td></td>
<td>NS</td>
<td></td>
</tr>
</tbody>
</table>
The treatment of row middles (wheellows) with weed control chemicals and mixtures of chemicals produced no significant yield reductions. Sencor, Tillam and the Paraquat + Vegiben mixture gave excellent weed control in both seasons. Vegiben requires soil moisture for best results and the poor showing in the fall resulted from an application made to dry soil. (End of Summary)

(1) Both chemicals approved for use separately. Tank mixes not approved unless stated on the labels.

(2) Not labeled for use on tomatoes in Florida.

(3) Vegiben granular only labeled for use on tomatoes.

(4) Tillam will suppress nutsedge (nutgrass).

NOTE: Growers are advised to check the labels carefully to be sure that materials are labeled for use on tomatoes.

(Montelaro)

C. Annual Vegetarian Index

The Annual Vegetarian Index has been initiated with the enclosed index for the 1971-72 production year. Now an easy means of locating a desired "article" is available for your use. It should prevent a loss of valuable time by eliminating the issue-by-issue scanning previously required to locate a desired article.

The index is arranged in a cross-referenced style so that an article is listed by both crop and specific topic. For example, if one were interested in pinworms on tomatoes, by checking the index under Section I - Crop: Solanaceous (tomato, potato, pepper and eggplant) or in Section II - Specific Topic: Pests and Control; we would find that in issue 72-3 (1972 - March) there was the article on "Pinworm on Tomatoes."

An additional characteristic is the use of (Commercial) and (Gardening) following the title of the article and issue number. These words are self-explanatory and serve to help the index user to categorize the slant of the article. Thus, for example, if we find the item Poultry Manure for Vegetable Crops 72-3 (Gardening) listed in the index, it indicates that the article is perhaps written more toward home gardener applications than commercial; however, this is not always a clear-cut distinction. In some cases, these terms would more aptly refer to where in the specific issue of the "Newsletter" the article is located, i.e., the Commercial Section versus the Gardening Section.

The format of the index is based on the production year in Florida which is assumed to be July 1 to June 30 of the next year. Thus, the normal content of a year's index will be the July issue through the June issue of the following year. However, the present "reference" type format for the newsletter was instituted with the August issue of 1971. It is for this reason that the initial index will contain listings from the August, 1971 issue through the June issue of 1972. Issues prior to August, 1971 were developed on an irregular
basis and followed no set issuance pattern. At the present time, an
index for these early newsletters is being developed and will be forwarded
at the appropriate time. Only articles of a lasting reference value will
be included in that index.

It is suggested that the issues covered by each index be filed
together or be held in a looseleaf notebook to facilitate rapid retrieval
of desired information.

(Kostewicz, Montelaro, Stephens)

D. Potential for Sweet Potatoes in Florida

The production of sweet potatoes has declined somewhat steadily in
Florida over the years. The estimated acreage has dwindled from 24,000 in
1943 to an estimated 2,000 acres at the present time. This downward trend
in acreage is not shown by Florida alone, but is reflected in the decreased
total acreage on the national level as use and demand have dropped. Several
of the southeastern states have recently been able to hold their acreages
steady and, in some cases, have increased their acreages.

Florida markets provide a large outlet for sweet potato producers of
these neighboring states. For example, in 1970, 193 truck loads of sweet
potatoes were handled in the Miami market. Of these, 3 truck loads were from
Florida and 169 were from two of the southeastern states. While statistics
for other market cities in the State might not show this volume or steady
increase in volume that Miami has, there is little doubt that the volume in
those cities is being filled by these neighboring states. A potential thus
exists for Florida producers to compete for these markets within their own
state. However, the competition will indeed be keen and only top-quality
sweet potatoes will be able to make any inroad into established marketing
arrangements.

Many different causes have been attributed as being the most responsible
factor for the decline of the Florida industry. Perhaps the single most
mentioned aspect has been the sweet potato weevil. The weevil, at one time or
another, has been a serious pest of sweet potatoes in many of the southeastern
states. Federal and State programs have combated this pest by using control
measures and quarantines to prevent spread to uninfested areas of the south-
east. The State of Florida has a set of rules entitled, "Florida Sweet Potato
Weevil Regulations," and they are administered by the Division of Plant
Industry of the Florida Department of Agriculture. The Florida regulations
are very specific in terms of what must be done to comply with the regulations.
The point to be stressed, however, is the fact that the regulations do state,
"Weevil-free potatoes may be grown and shipped within the state by following
the control recommendations as prescribed."

Previous descriptions of potentials for vegetable production in north
and west Florida have suggested sweet potatoes as a crop with good potential
for some areas. Then as now, the importance of the grower's willingness and
ability to practice up-to-date cultural recommendations including insect and
disease controls, a willingness and ability to assemble the product at a central
assembly or packing point, and a willingness to grade and pack a standard high-
quality product in a sufficient marketing volume for an experienced marketing man to sell are critical. There is a market for quality sweet potatoes throughout the State at all seasons of the year. If the production know-how and technology available are used, sweet potato production in Florida can be turned from potential to reality.

Traditionally, the "early" market for sweet potatoes has been the time when prices are generally the highest. This high-price market ranges from about May through part of July. It is at this time that the quality of the stored crop from other areas is reduced making the new supply of harvested potatoes more attractive and able to bring the premium prices. It is for this market that the central and south Florida areas have good potential for marketing sweet potatoes in the State.

The north and west areas of the State don't have the advantage of an earlier season and would be better suited toward fall or late production of sweet potatoes. The competitive advantage available to these areas is one of nearness to the marketing areas. This, of course, would be variable depending upon area, but certainly worthy of investigation for many areas.

Reiterating a point stressed before, only top-quality sweet potatoes will be able to make any inroad into established marketing arrangements. Any attempt to just get by may yield only temporary gains and certainly hinder the long-term development of the marketing channel. In future articles, topics of importance will be dealt with in an attempt to update our storehouse of knowledge on sweet potato production.

(Kostewicz)
II. VEGETABLE GARDENING

A. Grow A Garden - For What It's Worth

According to some observers, we may be seeing the replacement of the "Victory Gardens" of the 40's by the "Survival Gardens" of the 70's. This isn't meant to imply that our state and national economy is in that dire shape, but possibilities for stretching the food dollar a bit are getting close scrutiny these days.

To show how it can be done, here is an account of a survey made in a well-known Florida farming community. Of course, gardening is not restricted to just rural people, but is practiced by everyone, city folks included, having a suitable plot of ground.

The study was conducted on 33 farms in the Hastings, Florida area. Each farmer and his wife were interviewed and the information recorded. The records were taken from the farmers as the interviewer came to them. Four black farmers and 29 white ones were included in the survey. The average size of the farms was 60 acres. The principal cash crop was early potatoes.

Garden Products: Thirty-one of the 33 farms had gardens. Of the garden products grown in the community, 17 different vegetables were found in more than 20 percent of the gardens, with 50 percent of all the gardens having 9 or more kinds of vegetables. Green beans, turnips, beets, tomatoes, mustard and onions were the only garden products grown on 60 percent or more of the farms. Of the 31 gardens, two furnished 15 products, 9 furnished from 11 to 14 products, and 19 furnished from 6 to 10 garden products each.

Now a table is given to show the pattern of production from the various family gardens (see Table 1).

An attempt was made to find the season of the year that each product was most commonly used. The time as given in the last column of the table includes from 80 to 90 percent of all reports. This time does not mean that each farm having the product had it for the full period, but that the vegetable was used fresh every month covered by this period by one or more families. Collards were the only vegetable used the year round. The fact is that only one farmer reported using collards every month of the year, but the season covered on the other farms varied considerably from farm to farm, so that every month in the year was included by two or more farms.

The months of March, April and May were the months furnishing the greatest variety of vegetables. As many as 12 different garden crops were furnished on some of the farms for all three months. February, January, December and June were the next months of importance in the order named. Collards, okra and onions were the only garden crops harvested in August and September, collards for October and cabbage and collards for November.

It should not be inferred that it was impossible to have any of these vegetables outside of the time included, but it is evident that a large majority of the families interviewed did not consider it worthwhile.
Table 1. Distribution of Family Living from the Garden
33 Farms - Hastings Area, Florida

<table>
<thead>
<tr>
<th>Kind of Vegetable</th>
<th>Farms Furnishing</th>
<th>Amount of Product Per Family Using</th>
<th>Season Furnished</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td></td>
</tr>
<tr>
<td>From Garden:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beans (Green)</td>
<td>25</td>
<td>76</td>
<td>2 Bushels</td>
</tr>
<tr>
<td>Turnips</td>
<td>24</td>
<td>73</td>
<td>74 Pounds</td>
</tr>
<tr>
<td>Beets</td>
<td>23</td>
<td>70</td>
<td>70 Pounds</td>
</tr>
<tr>
<td>Mustard</td>
<td>21</td>
<td>64</td>
<td>79 Pounds</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>21</td>
<td>64</td>
<td>2 Bushels</td>
</tr>
<tr>
<td>Onions</td>
<td>20</td>
<td>60</td>
<td>2 Bushels</td>
</tr>
<tr>
<td>Cabbage</td>
<td>19</td>
<td>58</td>
<td>111 Heads</td>
</tr>
<tr>
<td>Okra</td>
<td>19</td>
<td>58</td>
<td>2 Bushels</td>
</tr>
<tr>
<td>Lettuce</td>
<td>18</td>
<td>54</td>
<td>66 Heads</td>
</tr>
<tr>
<td>Collards</td>
<td>16</td>
<td>48</td>
<td>71 Pounds</td>
</tr>
<tr>
<td>Cucumbers</td>
<td>12</td>
<td>36</td>
<td>2 Bushels</td>
</tr>
<tr>
<td>Peas (English)</td>
<td>11</td>
<td>33</td>
<td>2 Bushels</td>
</tr>
<tr>
<td>Radishes</td>
<td>11</td>
<td>33</td>
<td>15 Pounds</td>
</tr>
<tr>
<td>Rutabagas</td>
<td>11</td>
<td>33</td>
<td>46 Pounds</td>
</tr>
<tr>
<td>Strawberries</td>
<td>11</td>
<td>33</td>
<td>49 Quarts</td>
</tr>
<tr>
<td>Carrots</td>
<td>10</td>
<td>30</td>
<td>65 Pounds</td>
</tr>
<tr>
<td>Squash</td>
<td>8</td>
<td>24</td>
<td>80 Pounds</td>
</tr>
<tr>
<td>Peppers</td>
<td>7</td>
<td>21</td>
<td>66 Pods</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>5</td>
<td>15</td>
<td>-</td>
</tr>
<tr>
<td>Spinach</td>
<td>4</td>
<td>12</td>
<td>31 Pounds</td>
</tr>
<tr>
<td>Beans (Lima)</td>
<td>3</td>
<td>9</td>
<td>1 Bushel</td>
</tr>
<tr>
<td>From Field:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potatoes (Irish)</td>
<td>33</td>
<td>100</td>
<td>8 Bushels</td>
</tr>
<tr>
<td>Corn (Sweet)</td>
<td>26</td>
<td>79</td>
<td>21 Dozen</td>
</tr>
<tr>
<td>Peas (Southern)</td>
<td>15</td>
<td>45</td>
<td>6 Bushels</td>
</tr>
<tr>
<td>Potatoes (Sweet)</td>
<td>15</td>
<td>45</td>
<td>21 Bushels</td>
</tr>
<tr>
<td>Watermelons</td>
<td>10</td>
<td>30</td>
<td>77 Melons</td>
</tr>
<tr>
<td>Cantaloupes</td>
<td>7</td>
<td>21</td>
<td>94 Melons</td>
</tr>
<tr>
<td>Beans (Green)</td>
<td>3</td>
<td>9</td>
<td>2 Bushels</td>
</tr>
<tr>
<td>Cucumbers</td>
<td>2</td>
<td>6</td>
<td>2 Bushels</td>
</tr>
<tr>
<td>Peas (English)</td>
<td>2</td>
<td>6</td>
<td>1 Bushel</td>
</tr>
</tbody>
</table>
In addition to those vegetables coming from the garden, many families obtained fresh vegetables and strawberries from their own fields. The use of these vegetables by the families is also included in the table. All of the 33 farm families had fresh potatoes to eat, but it is significant to note that on the farms where sweet potatoes were grown, nearly three times as many sweet potatoes were used by the families. Almost half of the farms provided potatoes, sweet corn, sweet potatoes, and Southern peas for home use. Seven farms furnished cantaloupes and ten farms had watermelons. One-third of the families had fresh strawberries from their own plots.

By the way, the survey was conducted in 1927 covering the year 1926, by former Florida Agricultural Extension Economists, J. E. Turlington and D. E. Timmons. Would such a survey show a similar pattern today?

(Stephens)

B. Know Your Vegetables - Datal Pepper

A distinctly different small hot pepper called Datal has been grown in the St. Augustine area for some time by gardeners. There is some indication that Datal pepper belongs to Capsicum sinense Jacques, although common names are sometimes misleading. This species is most readily distinguished by the 3-5 flowers at each node, the drooping pedicels, and the circular constriction at the base of the fruit "cap." The plants are 1½ to 2½ feet high; the fruits are from 1 to 12 cm. long, varying in shape from spherical to oblong. Most of the other hot varieties of pepper are usually either Capsicum annuum or Capsicum frutescens.

Occasionally, seed of Datal will appear for sale in the Florida Market Bulletin. Otherwise, such seed is not always easy to obtain.

(Stephens)