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

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VEGETARIAN NEWSLETTER 72-8

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I. COMMERCIAL VEGETABLE PRODUCTION

A. Blossom Blight of Vegetables

Blossom blight is a rather common disease attacking many vegetable crops in Florida. It is a disease that is not often recognized by growers and for that reason, the problem is attributed to nutrition, variety, etc. The disease attacks a wide variety of crops, but is most common on okra, squash and cucumbers. It is less often seen on peppers, eggplant, tomatoes, watermelons, beans and possibly others.

When the disease attacks, it may prevent few, if any, fruits from setting. The causal organism (Choanephora cucurbitarum) is a fungus which is considered to be weakly parasitic. It attacks the flower petals first and then invades the developing ovary causing it to rot and die. As the flower starts to fade after opening, it is covered by a white fungal growth which turns black with age.

Blossom blight may or may not attack a susceptible crop depending on a certain set of conditions which are not fully known. A crop can be attacked at any stage of development after the start of flowering, and even without control measures, the disease can disappear just as quickly as it developed.

It is felt by some plant scientists that the Choanephora fungus is almost secondary in causing blossom blight. By this we mean that certain conditions within and without the plant predispose the flower and ovary to attack by this fungus. It is thought that the primary internal condition is related to poor pollination and fruit set. Poor pollination can result from many factors such as:

1. immature or overmature pollen
2. low humidity
3. lack of pollinating activity by bees
4. heavy rains
5. extremes in temperature
6. nutritional imbalances, etc.

There are no sound, economical methods for the control of blossom blight. On low-value crops, growers may best be advised to "wait until the disease disappears on its own." On the other hand, growers may wish to apply a good fungicide often to cover flower petals and ovaries on high-value crops. Fungicides are effective for controlling the fungus, but since most crops produce flowers lasting only a day, complete control with fungicides would require daily spraying.

Anything the vegetable grower can do to improve pollination will, also, tend to reduce incidence and severity of blossom blight. This includes proper use and management of bees, good plant nutrition, water control, etc.

(Montelaro)
B. Fertilization of Tomatoes, Peppers and Eggplant Under Full-Bed Mulch

The use of full-bed mulch culture is increasing rapidly in vegetable production in Florida. Until recently, full-bed mulches were used primarily on strawberries and trellised tomatoes. For the past two years, some growers have experimented with this method of culture on peppers and eggplant with good results. The 1972-73 season will see considerably more peppers and eggplant grown under full-bed plastic mulch.

Production of vegetable crops under this type of culture is quite complicated. The crop must essentially be supplied with all of its soil environmental requirements (lime, nutrients, soil pesticides, soil preparation, bed shape, etc.) before the mulch is applied. It is almost impossible to correct any deficiency of the above factors after the mulch has been applied.

Fertilization is probably the most complicated of all the problems listed. Consideration must be given to amounts and sources of required nutrients and placement of these materials. Research on fertilization for vegetables under full-bed mulch culture is being rapidly expanded by IFAS workers. The question of sources, rates and placement has not as yet been worked out to everyone's satisfaction. The following suggestions are those arrived at by the writer from review of research results and grower trials. Fortunately, vegetable crops are sufficiently flexible in their requirements so as to permit fairly successful production even with some variations from suggested practices.

For Peppers and Eggplant Under Full-Bed Mulch Culture

(1) Lime soil with dolomite (or high calcic limestone if magnesium is already high in soil) to pH 6.5 for peppers and 6.0 to 6.2 for eggplant. (Note: Eggplant may develop Verticillium wilt at high pH.)

(2) Broadcast and disk in

(a) Superphosphate at rate of 1,000 or more lbs. per acre before fumigation. (Vary amount depending on residual P₂O₅.)

(b) Minor elements - from mix of oxides and salts or 20 to 30 lbs. FTE 503 per acre.

(c) Mixed fertilizer - 500 lbs. or more of 5-10-10 or 6-12-12 as a "starter." (Note: Alternative is to broadcast the starter fertilizer on the surface just prior to applying mulch cover.)

(3) Apply the balance of fertilizer in two broad bands on each side of a one-row bed or in one broad band on a two-row bed. A total of 1,500 to 1,800 lbs. of an 18-0-25 mixture can be used here.
(4) Total major elements suggested per acre.

\[
\begin{align*}
N & \quad P_2O_5 & \quad K_2O \\
250 \text{ to } 350 \text{ lbs.} & \quad 100 \text{ to } 200 \text{ lbs. (old land)} & \quad 400 \text{ to } 500 \text{ lbs. (new land)} \\
200 \text{ to } 300 \text{ lbs.} & \quad 100 \text{ lbs.} & \quad 200 \text{ lbs. (new land)} \\
\end{align*}
\]

(5) Nitrogen in all mixes should come primarily from a nitrate source. Suggestion is 70% nitrate-nitrogen and 30% ammonia-nitrogen. Some natural organics can be added. But, remember in fumigated soils they will not readily convert until soil is re-inoculated with the nitrifiers.

Go easy on the use of ammoniated superphosphate and diammonium phosphate until more is learned about their availability to these crops.

For Tomatoes Under Full-Bed Mulch Culture

(1) Lime to pH 6.5 to 6.8 with dolomite plus high calcic limestone.

(2) Same as above for peppers and eggplant.

(3) Same as above for peppers and eggplant, except increase amount of 18-0-25 to a range of 1,800 to 2,300 lbs.

(4) Total major elements suggested per acre.

\[
\begin{align*}
N & \quad P_2O_5 & \quad K_2O \\
350 \text{ to } 450 \text{ lbs.} & \quad 150 \text{ lbs. (old land)} & \quad 550 \text{ to } 650 \text{ lbs. (new land)} \\
300 \text{ lbs. (new land)} & \quad 150 \text{ lbs.} & \quad 550 \text{ lbs. (new land)} \\
\end{align*}
\]

(5) Same as above for peppers and eggplant.

The above are suggested guidelines which can be modified within limits without greatly increasing risk of failure. In the past, we have observed cases where crops under full-bed mulches "ran out" of fertilizers toward end of the season. This is especially true on the long-season crops which are in the field for six or more months. Growers should anticipate this problem and make plans to introduce more fertilizer under mulch when and if it is needed.

(Montelaro)

C. Research Results of Interest to Vegetable Growers

(1) Injury to Tomato Fruit From Pesticidal Spray Combinations

This newsletter on several occasions in the past has called attention to research and observations on injury to vegetable crops from combinations of materials in the spray tank. In some recent research, Dr. S. L. Poe and Dr. J. P. Jones, working at the Agricultural Research & Education Center at Bradenton, noted that severe tomato fruit injury resulted from spray combinations of Difolatan and Parathion + TDE. The fruit injury was characterized by shallow, darkened pits on the surface. More than 50% of the tomato fruits were unmarketable as a result of the injury. Without TDE, the Difolatan and
Parathion mixture caused no fruit injury. These results should serve again to warn growers not to mix materials in the spray tank indiscriminately. Leave out the major element fertilizer materials and use only those insecticides and fungicides deemed to be absolutely necessary.

(2) Effect of Temperature on Effectiveness of Parathion

Growers have observed periods when an insecticide failed to control pests as well as expected. This is especially true with the parathions. Dr. D. O. Wolfenbarger tested methyl-ethyl parathion under controlled conditions on aphids infesting young potato plants. His results showed that aphid mortality from parathion was directly related to temperature. He obtained only 67% kill at 45°F, 80% at 50°F, 90% at 63°F, and 95% at 77°F.

Based on this and previous work, vegetable growers should make every effort to avoid using the parathions and certain other insecticides at low temperatures. If possible, these materials are best applied at air temperatures of 75°F to 80°F. (Montelaro)

D. Caution! Using Empty Drums for Culverts Can Be Dangerous

Vegetable growers are quite adept at improvising needed equipment from materials on hand. One such example of this has been observed to be hazardous and needs some attention from a safety standpoint. It is the practice of making drainage culverts from several old used drums (30-gallon pesticide, etc.). The tops and bottoms are cut out with a welding torch, then the drums are welded together.

We in the Cooperative Extension Service feel that this practice is hazardous in many respects and can be extremely dangerous to the worker who must cut and weld the drums together. First, we suggest that other materials designed specifically for culvert usage be utilized wherever possible and that pesticide (or other chemical) drums not be used for this purpose, for the following reasons:

(1) Drums have been known to explode when touched with the torch or welding rod (not all of them explode, but the occasional one that does is dangerous).

(2) Chemicals (many times unknown) may vaporize under the extreme heat and may cause respiratory injury.

(3) Irrigation and drainage water flowing through such culverts could become contaminated.

Certain Precautions

For growers who do not heed the warnings and insist on using the drums for culverts, here are a few suggestions which might reduce the dangers (but not eliminate them completely):

(1) First, use the decontamination procedures as outlined in the Insect Control Guide (includes washing, rinsing and draining).

(2) Open all bungs and lids before cutting.

(3) Make sure the drum is filled with water while cutting out the top end.

(4) Use only drums which are labeled to have contained only safe pesticides (unlabeled drums contain unknown chemicals).

(Stephens)
II. VEGETABLE GARDENING

A. Results - 1972 State 4-H Vegetable Judging Contest

State 4-H Club Congress has just concluded at the University of Florida where the State 4-H Vegetable Judging Contest was held. Contestants identified insects, diseases, weeds, seeds, nutritional disorders, defects, and vegetable varieties. They judged vegetables and graded 100 Irish potatoes for quality.

Eight county teams participated. The winning team was from St. Johns County, followed by Liberty, Okaloosa, Orange, Columbia, Suwannee, Dade and Martin.

The St. Johns County team will represent Florida in the national contest in Columbus, Ohio, in December. The trip is co-sponsored by the Florida Power Corporation, Florida Power and Light Company, and the Florida Department of Agriculture and Consumer Services.

(Stephens)

B. Results - 1972 State 4-H Horticultural Demonstrations

Ten demonstrations on horticultural practices were presented during State 4-H Congress. The results are as follows:

<table>
<thead>
<tr>
<th>Placing</th>
<th>County</th>
<th>Name</th>
<th>Title of Demonstration</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>St. Johns</td>
<td>Angie Brock</td>
<td>&quot;Growing Herbs&quot;</td>
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<tr>
<td></td>
<td></td>
<td>Denice Masters</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>St. Johns</td>
<td>Charlene Foster</td>
<td>&quot;Gladiolus&quot;</td>
</tr>
<tr>
<td>3</td>
<td>Brevard</td>
<td>Karen Barber</td>
<td>&quot;Fruits and Dips&quot;</td>
</tr>
<tr>
<td>4</td>
<td>Pasco</td>
<td>Ricky Avriett</td>
<td>&quot;Garnishes&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Linda Avriett</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Lee</td>
<td>Doug Guidry</td>
<td>&quot;Plant Propagation&quot;</td>
</tr>
<tr>
<td>6</td>
<td>Pasco</td>
<td>Jeff Futch</td>
<td>&quot;Roses In My Garden&quot;</td>
</tr>
<tr>
<td>7</td>
<td>Wakulla</td>
<td>Bill Harvey</td>
<td>&quot;How To Make A Jiffy Pot&quot;</td>
</tr>
<tr>
<td>8</td>
<td>Lake</td>
<td>Brian Goodwin</td>
<td>&quot;Plant Soil&quot;</td>
</tr>
<tr>
<td>9</td>
<td>Liberty</td>
<td>Wesley Crews</td>
<td>&quot;Home Vegetable Garden&quot;</td>
</tr>
<tr>
<td>10</td>
<td>Santa Rosa</td>
<td>Jed Knoblock</td>
<td>&quot;Plant Propagation&quot;</td>
</tr>
</tbody>
</table>

The winning demonstration will be presented in national competition at Columbus, also.

(Stephens)

C. Horticultural Production Project Winner

Jimmy Browning, 18 year old 4-H member from Elkton, Florida, has been recognized for having the most outstanding Horticultural Project in Florida for 1972. He will attend the National 4-H Congress in Chicago in November, courtesy of the Florida Nurserymen and Growers Association. Jimmy was further honored by being elected State 4-H Club President for the 1972-73 year.

(Stephens)
D. Some Gardening Books of Interest

In addition to our own University circulars and bulletins, many good booklets on gardening (vegetable, fruit, and ornamental) are on the market. The following are some examples of such manuals.

(1) Vegetable Gardening, by the Progressive Farmer Book Division, Birmingham, Alabama. This attractive, well-illustrated booklet covers the production of vegetables, berries, grapes, and herbs in the Southern states.

(2) Organic Gardening and Farming, by Rodale Press, Emmaus, Pennsylvania. This monthly periodical is much used by those gardeners who attempt to avoid "conventional" methods of gardening. Information and testimonials presented reflect the "organic" philosophy.


(4) The Maxwell Series of Horticultural Books, available from Lewis S. Maxwell, 6230 Travis Boulevard, Tampa, Florida. All in the Maxwell Series are extremely well illustrated. The series includes (1) "Florida Lawns and Gardens," (2) "Florida Plant Selector," (3) "Florida Insects," (4) "Florida Fruit," and (5) "Florida Flowers: (Annuals and Bulbs)."

(5) Vegetable Gardening, by Sunset Books and Sunset Magazine, Lane Books, Menlo Park, California. This is an illustrated guide to growing vegetables in the garden and landscape.

(6) Gardening, the Boy Scouts of America Merit Badge Series, by Paul Work, New Brunswick, New Jersey. A concise manual on vegetable gardening fundamentals.

(Stephens)

E. Know Your Vegetables - Leek

The leek (Allium porrum) is a biennial that is grown as an annual for its long blanched or unblanched stems. It forms a thick, fleshy structure like a large green onion plant without a bulb. It is attractive in appearance with its silvery base and green top. The leaves are flat, in contrast to the round ones of the onion. The thick leaf bases and slightly developed bulb are eaten as a cooked vegetable or raw with or without attached leaves. The green leaves may be eaten and have a pungent odor and acrid taste. They are used more for flavoring in salads and cookery.

Leeks should be started from seed in the fall in Florida and grown very much like the common onion.

(Stephens)