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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 78-4

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THE VEGETARIAN NEWSLETTER

I. NOTES OF INTEREST

A. Gardening Reprints

This is to bring to your attention two reprints from the 1977 USDA Yearbook of Agriculture; Gardening for Food and Fun. Both are related to vegetable gardening and perhaps would be useful to you in County work. They are as follows:

1. Growing Your Own Vegetables, USDA Agriculture Information Bulletin 409. (244 pgs. illus.)

2. Canning, Freezing, Storing Garden Produce, USDA Agriculture Information Bulletin 410. (384 pgs. illus.)

These two reprints may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 (price not quoted).

(Stephens)

B. Reannouncement of Field Days

1. LOCATION: AREC, Sanford, Florida
   DATE & TIME: 1:30PM Tuesday, April 25, 1978
   CROPS: Cabbage, celery, etc.

2. LOCATION: AREC, Belle Glade, Florida
   DATE & TIME: 9:00AM Tuesday, May 9, 1978
   CROPS: General muck-grown vegetables

3. LOCATION: ARC, Immokalee, Florida
   DATE & TIME: 1:00PM Wednesday, May 10, 1978
   CROPS: Tomatoes, watermelons, etc.

A program for each field day will be sent out later. Put these dates on your calendar and plan to attend all events.

(Montelaro)
II. COMMERCIAL VEGETABLE PRODUCTION

A. Cabbage Transplants - Care In Production

Cabbage growers in Florida were hit hard again this year with disease and nematode problems. The most prevalent was black rot disease. Some fields were plowed under without harvest and most others were affected to some degree. In many cases the problem could be traced back to the plant beds. A check of transplants going to the field and plant beds by Extension and Research workers pointed to poor plant bed management. Good quality transplants are just as important to successful crop production as good quality seed.

Sanford AREC Plant Pathologist, Jim Strandberg and Seminole County Extension Agent, Reggie Brown, feel that good plant bed management is essential for the production of healthy, vigorous cabbage transplants. By eliminating or, at least, reducing the incidence of nematodes and diseases in transplants, the chances of success in the production field increased many fold. They summarized their recommendations at a meeting of cabbage growers as follows:

"Successful cabbage production depends upon a total commitment to cabbage crop management. Growers who routinely produce steady supplies of quality cabbage do not approach the problem in a piecemeal fashion. Similarly, maintaining satisfactory levels of pest related losses or damage also requires a total program approach. The development of any crop management program must consider the individual requirements and goals of the grower and such programs will vary. Regardless of what program is followed successful completion of all steps in the program is essential. The best way to solve production problems is one at a time. The best place to begin is in the seedbed."

1. Seed

   a. The production of seed in apparently disease free areas of the United States does not insure that seed will be disease free.

   b. Seed of foreign origin has repeatedly been shown to carry diseases such as black rot and black leg with much greater frequency than domestic seed. However, the fact that seed is of foreign origin does not mean it carries disease producing organisms. If you try seeds of foreign origin, isolate them in your seed-bed and production areas or direct seed them.
c. All seeds should be hot water treated at 50°C for 25-30 minutes to control black rot. This is an old method but the best we have. If done properly it will not harm good seed.

d. Some seed lots have been assayed for black rot and some have been found to be free of this disease (no infected seeds in 10,000). Inquire about it and use these seeds if you can.

e. Seeds should be treated with a protectant fungicide by the grower or in some cases this can be done by the seedsman on special order. It is definitely beneficial to do so. Be sure to treat or re-treat seed that has been hot water treated.

2. Location of Seedbeds

a. Seedbeds should be located on high, well drained soil. Raised beds should be used. Flooding of seedbed area, even briefly, is usually disastrous and results in 100% infection by black rot. Provide for rapid and direct runoff of rain water. Locate seedbeds where no runoff is likely to enter the seedbed areas.

b. Seedbeds should not be located within ¼ mile of production fields of any cruciferous crops.

c. Present research indicates that black rot does not over-season in Florida soils in the absence of cabbage plant residue. Thus, seedbed areas can probably be used (if necessary to do so) from year to year if they are kept free of weeds and are cover-cropped. Turn under unwanted seedbeds immediately.

d. Avoid areas where cruciferous weeds are present. There are seven weed species known to be sources of black rot and other diseases of cabbage. Volunteer plants of the crucifer family are as dangerous as weeds.

3. Fumigation and Seedbed Preparation

a. The fumigant materials available have provided very erratic results unless carefully applied under proper weather and soil conditions. Read the label. Many, if not most fumigation jobs are poorly or improperly done and often cause as much harm as good.
b. Contact nematicides (check labels for approval) coupled with a good fungicide spray program can produce excellent transplants without fumigation.

4. Seedbed Operations - General

a. Isolate different varieties by as large a distance as possible - or plant at different times. Do not plant miscellaneous crucifers in seedbed areas regardless of source. Direct seed them in an isolated area.

b. If possible, plant several small seedbed units rather than one large one.

c. Farm equipment used in seedbed areas should remain in seedbed areas. Do not use field equipment to maintain seedbeds. This includes sprayer, carts, fertilizer equipment, and irrigation pipe, etc. If this is not possible, decontamination procedures are essential.

d. Inspect areas and eliminate cruciferous weeds. They are sources for several insects and diseases.

e. Seedbeds should be inspected at least once weekly for insects and diseases and especially just prior to pulling transplants. It is usually a waste of time to use transplants from seedbeds infected with black rot.

f. Unless the grower feels qualified to attempt other methods, seedbeds should receive regularly scheduled general purpose fungicide and insecticide sprays. Although seedbeds can be grown under a pest management program, there is little room for error in controlling diseases and insect pests. Larger growers should initiate a pest management approach since substantial savings can be realized by avoiding unnecessary sprays.

g. A fungicide program using presently recommended materials for downy mildew control will usually control Alternaria and significantly reduce problems due to damping-off fungi and Rhizoctonia.

h. Do not irrigate from open ditch sources close to a seedbed. Use well or subsurface irrigation.
5. **Harvesting Transplants**

a. Transplants should not be topped or mowed to toughen them up or reduce their size. It is better to cut back on fertilizer or water to toughen them up.

b. Do not wet down transplants, wash soil from roots, or dip transplants prior to planting. These are some of the most effective ways known to spread pests and diseases to your entire crop.

c. Decontaminate plant boxes after each use. Do not bring field equipment into the seedbed area to pick up transplants. If necessary, a thorough washing with water is better than nothing at all.

6. **Transplants from Other Sources**

Transplants grown for sale should be grown under a system which considers all the topics outlined above. Transplants from out-of-state have been inspected and certified as being free of visible symptoms of diseases and pests. Unfortunately this system is not completely effective. Treat all transplants as you would seed from a questionable area. Isolate them from other production units. Decontaminate equipment. Remember, equipment is an excellent agent for movement of diseases and pests from field to field.

7. **Additional Comments**

It is entirely possible and highly likely that bacteria which cause black rot are always in the seeds or on plants. When weather is favorable an epidemic results. Always assume that it is present whether you see disease symptoms or not and you will probably benefit.

It is futile to spend time and effort on any of the above considerations if you are going to ignore the others. Only a total effort can eliminate seedbed pest problems.

It is the weather conditions which determine good and bad years for black rot. In spite of favorable conditions for diseases, some growers usually escape serious losses. They are the growers who are following a sound management plan.

(Montelaro)
B. Strawberry Plant Production

Production of both strawberries and strawberry plants could easily be increased throughout Florida. Almost every community in Florida has room for a U-pick strawberry operation. Also, we know that people are willing to drive 25 to 100 miles to pick their own strawberries. Agents, therefore, may wish to identify one or more small farmers who have some capital to invest and show potential in growing a quality crop of strawberries.

Another segment of the strawberry industry that needs attention is the production of quality plants for commercial berry growers. This past year, plants and shipping costs were $30 to $50 per thousand, or $500 to $1000 per acre. Berry growers would feel better about this cost if healthy, vigorous plants could always be purchased. Therefore, we believe that a small plant industry can be enlarged, especially on some North Florida soils where excess rainfall can be drained quickly from the entire bed.

Potential growers should consider the following points carefully before beginning to grow strawberry plants.

1. Nematode Control

All plant pests, especially nematodes, must be controlled on strawberry plants offered for sale. Therefore, considerable cost and extreme care must be exercised to produce quality pest-free plants. Treatment involves the use of multi-purpose soil fumigants which control most nematodes and some weeds and soil-borne diseases. Application costs are considerably higher than berry production fields because the entire field must be treated and covered with plastic.

2. Weed Control

Because cultivation is impossible after the runner plants "peg down", growers must depend on an effective weed control program. Proper application of a multi-purpose soil fumigant when the soil moisture is near field capacity will control a majority of weeds. Registered herbicides can be applied after transplanting or after plants become established to control susceptible weeds. Growers should also expect to hand weed once or twice during the growing season. Avoid locating plant nurseries where perennial weeds are known to infest the field.
3. **Planting and Irrigation**

"Mother" plants must be set at the proper depth so that soil is around the crown. Planting too deep will kill the crown, whereas planting too shallow exposes the roots. Irrigate often so that summer plants will "peg down".

4. **Labor Requirements**

Production of strawberry plants requires considerable hand labor. Be certain that adequate supplies can be obtained when needed. Because plants must be harvested and planted immediately throughout Florida, the peak labor requirement will occur in late September and October.

Agents may wish to obtain copies of VC Extension Report No. 26-78, "Strawberry Plant Production" from the Vegetable Crops Department.

(William)

C. **Some Causes of Leaf Spot on Tomatoes**

County extension agents, fieldmen, and pesticide salesmen encounter a great many foliar symptoms on field and greenhouse tomatoes. Some of the symptoms may appear as deformities, discolorations, spots, streaks, or terminal point destruction. This brief article outlines some of the most common causes of leaf spot problems. Information was developed from established literature sources, personal experience, and from discussions and helpful suggestions by Dr. John Paul Jones, Plant Pathologist, and Dr. David J. Schuster, Entomologist, both of the AREC Bradenton faculty.

The greenhouse tomato industry has grown in Florida during the past five years. Many of the varieties being used have little resistance to some of the most common tomato diseases; thus we are seeing some symptoms which occur rarely with the multiple-resistance field varieties.

The following leaf spot symptoms on tomatoes have been grouped according to their most prevalent early occurrence on the plant. This list is to be part of a series of symptoms. This list is not exhaustive and the author welcomes constructive suggestions as to how this series may be made more complete, interesting, and useful.
A. Younger Leaves

1. Light tan or gray spots appear which soon became covered with a heavy growth of fungus. The leaf usually collapses and withers.

   **Gray Mold**

   **Botrytis cinerea**

2. Light green mottling followed by the development of numerous grayish-brown dead spots on the leaves may also be accompanied by stem streaking and fruit disorders.

   **Potato virus Y group**

3. Irregular pale green patterns form between veins of the leaf followed by necrotic spot development.

   **Manganese deficiency**

4. The shallow circular insect wounds due to ovipositor punctures usually turn into yellowish-white spots. The female may make 400 to 500 punctures, about 1% of which may contain an egg which later develops into a burrowing larva causing the characteristic serpentine mine.

   **Leaf miner**

   **Liriomyza sativa**

B. Older Leaves

1. Irregularly shaped greenish-black water-soaked patches appear which enlarge rapidly. A white, downy growth may appear on the lower surfaces of the leaf which is slightly purplish when wet. Severely affected plants look like they have been killed by frost. Also attacks young foliage and plant seems to melt.

   **Late blight**

   **Phytophthora infestans**

2. The small, black, round or irregular spots with zonate markings are slightly sunken. They enlarge rapidly and coalesce (fuse). The leaves turn yellow and curl upward and remain attached to the plant.

   **Phoma spot**

   **Phoma destructiva**
3. Small irregular brown deadspots show ridged concentric rings in a target pattern as they enlarge. Leaves may fall from plant. Often a disease of hungry plants.

   **Early blight**  
   *Alternaria solani*

4. The minute brownish-black specks may be circular or irregular. Heavily infected leaves usually turn brown, die and drop from the plant.

   **Gray leaf spot**  
   *Stemphylium solani*

5. The pin-point lesions increase in size with the centers changing to white circular spots. The spots coalesce as they enlarge. The leaves die, shrivel, and dry but do not fall from the plant.

   **Target spot**  
   *Corynespora cassicola*

6. Small, irregular greasy spots on the underside of the leaf appear as light tan lesions on the upper side of the leaf. The lesions have distinct yellow margins. Often confused with bacterial spot.

   **Bacterial speck**  
   *Pseudomonas tomato*

7. Greasy, small irregular or circular spots with sunken black centers tear away, giving the leaf a ragged appearance. The leaves usually turn yellow and die. May appear on young foliage, too.

   **Bacterial spot**  
   *Xanthomonas vesicatoria*

8. The yellowish or light green spots on the upper surface of the leaf are supported by a grayish-purple moldy growth on the underside of the leaf. More common in greenhouses than in field tomatoes. May appear on young foliage, too.

   **Leaf mold**  
   *Cladosporium fulvum*
9. Dead spots develop at margin and tip of leaf which make leaf appear scorched. Growth is usually retarded. In advanced stages tip die-back is evident. Most common late in growing season.

- Potassium deficiency
- K shortage or excess of calcium or magnesium

10. When first hatched the larvae from the clustered egg-masses feed mainly on the underside of the leaf leaving only the upper epidermis intact resulting in windowed holes. Later more mature larvae may devour large section of leaves.

- Fall armyworm
- Laphygma frugi perda
- So. armyworm
- Prodenia eridania

C. Spots Not Restricted to Oldest or Youngest Leaves

1. Round, elongate or triangular white spots which later form brown necrotic centers.

- Contact herbicides

2. Irregular shaped, sunken spots which often have a glazed or transparent appearance on the upper surface.

- Various chemical sprays

3. Irregular brownish-white spots which are confined to interveinal areas and leaf tips where spray droplets gather. These usually do not coalesce except in severe cases, may be upper or lower surface.

- Air pollution damage

4. Pale yellow to brownish spots, variable in size and on both upper and lower leaf surfaces which give the leaf a bronzed or stippled appearance. The leaves usually brown, die and drop if infestation is heavy.

- Red spider
- Tetranychus sp.
5. Transparent spots are formed due to young loopers eating holes in the underside of the leaf, leaving the upper epidermis intact. These spots are often referred to as "windowed holes".

Cabbage looper  
*Trichoplusia sp.*  
(Marlowe)

III. HARVESTING AND HANDLING

A. Waxing of Cucumbers

This is the season that Florida begins volume shipping of cucumbers and we hear many comments from consumers concerning excess wax on the fruit which makes them feel greasy as well as look unattractive when displayed.

Work done by Segall, Dow and Davis in 1973 and 1974 and published in the 1974 Florida State Horticulture Proceedings has reconfirmed earlier research that has shown weight loss and shriveling is reduced significantly by waxing. Yet along with this the decay incidence was doubled. Average decay incidence was 59% for waxed and 32% for unwaxed. Most of the decay in storage at 21°C was bacterial soft rot caused by *Erwinia carotovora* which followed bacterial spot infections that occurred in the field. There are some things that can be done to help this situation.

1. Good field disease control so fruit are free of bacterial spot and anthracnose.
2. Inspect waxing equipment to make sure it is applying wax properly. Make sure brushes are picking up the proper quantity of wax.
3. Make sure cukes are moving slowly enough and are turning sufficiently so that they are being brushed thoroughly.
4. See that brushes do not become saturated with wax so that they are actually applying more wax rather than removing and evenly spreading it.
5. Check on the quality and composition of the different waxes available. There are several different forms from different sources.
IV. VEGETABLE GARDENING

A. Southern Pea Classification

Probably no other vegetable crops is surrounded by more confusion in classification and varietal nomenclature than the southern pea. Even the name of the vegetable itself is surrounded by a mixture of synonyms. Southern pea is the preferred name now, but many still refer to this vegetable as cowpea, edible cowpea, field pea, blackeye, and table pea.

There are many named varieties (cultivars) as well as many unnamed strains of this excellent human food legume. Part of the confusion in knowing precisely which of these varieties or strains one might have is due to many growers saving their own seed. The true varietal identity becomes lost, and a new local name is given. As the seeds are spread around even more, names are given to what started out as one variety. Precise identification is extremely difficult once the original name tag is lost.

Some years ago, over 50 of these varieties and strains were identified. Through testing each one was shown to be a little different from the others. Since then, many other varieties have been added to the list through the efforts of plant breeders around the country, particularly in the south.

The following groupings are offered to provide the gardener with a way to classify more closely his unknown seed-stock.

With the exception of the Purple Hull Group, the classification is based mostly on color of the seed and seed-eye, and closeness of spacing of seeds in the pod.

Varieties with seeds that are so closely spaced that the seed ends are pressed against each other are called Crowders. Seed color varies, but is either concentrated around the seed-eye (hilum) or is general all over the seed coat. Any amount of seed color causes darkening of the "pot-liquor" and the cooked seeds. Those varieties having no color are called Creams. Most of the cream peas are loosely spaced, but newer cream crowder varieties are available. The Purple Hull group includes those having some purple coloring on their pods, even though they may fit into another grouping due to other characteristics.

Further confusing the issue is the plant growth habit, there being bush, vining, and semi-vining habit. These groupings will not deal with plant habit.
1. **Blackeye Group**

The seeds are not crowded in the pods. They are white with dark black eyes. **Examples:** Ramshorn Blackeye, California Blackeye #5, Big Boy, Extra Early Blackeye, and Blackeye Crowder.

2. **Blackeye Crowder Group**

Similar to regular blackeyes, except the seeds are crowded in the pods. **Examples:** Alacrowder.

3. **Colored-eye Group**

This group has seed-eye coloring other than black. Usually it is brown, tan or pink. Seeds not crowded. **Examples:** Alalong (Longhorn), Todd, and Alabunch.

4. **Colored-eye Crowder Group**

Same as above, except seeds are crowded in pods. Includes Red "Holstein eye" pattern. **Examples:** Pinkeye Crowder, Browneye Crowder, White Pinkeye, Calico (Hereford), and Alabrowneye.

5. **Black Crowder Group**

The seeds are solid black. Seed most always crowded. **Examples:** Black Crowder.

6. **Brown Crowder Group**

Most crowders fit into this group, and most all brown seeds fit here. Some seeds are tan colored. **Examples:** Brown Crowder, Sugar Crowder, Silverskin Crowder, Alabama Crowder (not the same as Alacrowder), Mississippi Silverskin, Jackson 21, Dixie-Lee, Producer, and Calhoun Crowder.

7. **Speckle Crowder Group**

Speckled blue seeds are moderately crowded in pods. Have largest seeds of the southern peas. **Examples:** Blue Goose (Gray Goose), Whittle, Speckled Java, Gray Crowder, and Taylor.

8. **Cream Group (Conch)**

Seeds are light green or white. Cooking water comes out bright and clear. Since most creams are uncrowded, most fit into this group. **Examples:** Floricream, Sadandy, Cabbage (Bush White Acre), Running Acre (Running Conch), Topset, Snapea, Climax, Bush Conch, White Acre, Terrace, Gentlemen, and Texas Creams (40, 8, 12 others).
9. **Cream Crowder Group**

Uncolored seeds, but crowded in pods. Examples: Lady Cream, Lady Finger (Rice or Catjang), White Sugar Crowder (actually, have a colored eye so would fit the colored eye crowder group), and Zipper Cream.

10. **Purple Hull Group**

Seed pods show some purple coloring, either at tip are all over. Seeds may or may not be crowded. Usually white peas with buff, brown or pink eyes. Examples: Jackson Purple Hull, Dixie Queen, Herbken, Knuckle Purple Hull, Pinkeye Purple Hull, Purple Tip Crowder, and Purple Hull.

11. **Field and Forage Group**

This final group includes all those grown most usually for forage cropping and soil improvement. Examples: Iron, Clay, Whipporwill, New Era, Groit, Brabham, Victor, Arlington, Red Ripper, Columbia, and Michigan Favorite.

B. **Know Your Vegetables - Martynia**

Martynia (*Proboscidea louisianica* (M.) T.), popularly called "Unicorn Plant" is grown for its seed pods which are picked while young and tender and used for pickles, like cucumbers. Both the generic name *Proboscidea* (nose-like) and the popular name Unicorn Plant refer to the configuration of the pods. These fruits are hairy, about one inch thick and four to six inches long at maturity, about half the length consisting of a slender curved beak.

The plant is an annual, up to 2 to 3 feet in height, with big 4 to 12 inches wide round, pointed leaves.

Due to the unusual shape of the pods, the plants are grown as ornamentals and the floral arrangements more often than for vegetables.

Martynia is native to the Southwestern United States and occasionally is grown in home gardens throughout the country. Florida gardeners wishing to try this as a novelty plant should look through their seed catalogs for a listing.

**Culture:**

Martynia unicorn plant is grown about the same as okra. Like okra, it does best in a warm sunny location, for it is a hot-weather plant.
It may be started in the garden either by direct seeding or by setting out transplants. For transplants, sow seeds in individual transplant containers, or in an outdoor seed bed. Like many other vegetables, be sure to keep as much soil as possible around the roots when transferring the plants from the seed bed to the garden row.

In the garden, space plants three feet between rows and 18-24 inches between plants. Sow the seeds ½ to 1 inch deep and thin out young seedlings to the desired distance.

Except in South Florida, start plants outdoors in the spring as soon as frost danger is past. In South Florida, including the keys, wintertime planting is possible.

Pick the pods while still tender, or they are unfit for consumption. Continue picking as they develop, to encourage more pods to set. The entire young pods are used for pickling sweet like cucumbers.

(Stephens)