The VEGETARIAN Newsletter

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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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I. COMMERCIAL VEGETABLE PRODUCTION

A. Bacterial Leaf Blight of Sweet Corn

One of the most serious outbreaks of a "basal ear rot" of sweet corn ever seen in the state developed in the central Florida area late last spring. Some growers graded out as much as 10 to 15 percent of the sweet corn ears in order to make grade. The disease hurts the grower by reducing pack-out and increasing the cost of handling.

The disease is commonly referred to as bacterial leaf blight. Basal ear rot is one manifestation of the disease; the other is the development of stripes and dead spots on the leaves. A good description and pictures of bacterial leaf blight can be found in Agricultural Experiment Station Bulletin 714, pages 32-34.

The disease has been studied over a period of years by Dr. C. Wehlburg at the Belle Glade Station. He and Dr. John Miller of the Department of Plant Industry identified and made an in-depth study of the recent outbreak of the disease. They feel that the disease organism is not soil-borne. However, they did find that some of the grasses are susceptible to the disease. So far, they have found it on only one species, but fully expect to find it on others.

According to Dr. R. S. Mullin, we have no chemical controls that can be considered of economic value. Based on the findings of Wehlburg and Miller, it might be advisable to stress (1) better grass control within the sweet corn field, and (2) control of grasses in ditchbanks, alleys and border areas of sweet corn plantings.

There are indications that sweet corn hybrids differ in susceptibility to bacterial blight of sweet corn. Growers conducting their own variety testing program should check these carefully for susceptibility to this disease. Presently, we have no reason to believe that the disease will develop every season as seriously as it did last season.

(Montelaro)

B. Potato Seed-Piece Treatment and Handling

The May 4, 1972 issue of the Vegetarian Newsletter carried an article entitled "Potato Seed-Piece Treatment." The article discussed research conducted at Hastings and materials recommended for seed-piece treatment. Most growers in Florida are treating potato seeds regularly. Treatment is inexpensive and quite beneficial in most seasons.

Potato seed-piece treatment can create problems under certain conditions. Our recommendations are to cut, treat and plant. When treated seed-pieces are not planted shortly after cutting and treating, they are likely to start decaying rapidly. The reason for this is that the treatment materials, which are in a dust form, can disrupt the normal process of "wound-healing" under certain storage conditions. If the cut surface does not heal-over properly, it is easily invaded by soft-rot organisms which can cause complete loss of all potato
seed-pieces stored in bags, boxes or piles. The wound-healing process is a natural development in a potato whereby a corky layer of tissue is formed over the cut surface. This layer of tissue is quite resistant to penetration by soft-rot organisms. Wound-healing proceeds best at temperatures of 65° to 70° F. and 85 to 95% relative humidity.

Growers should not continue to cut and treat if the seed cannot be planted within a few hours. Where the planting operation is stopped by change in weather, equipment breakdown, etc., the cutting and treating operation should be stopped, also. Potato seed-pieces left unplanted should be placed under temperature and humidity conditions described above. They should, also, be stacked in such a fashion as to permit good air circulation around the seed-pieces. This may mean loose stacking, turning seed-pieces often, etc. More often than not, potato seed-pieces which have started to rot will continue to rot after planting to the field.

(Montelaro)

C. Planning Before Planting Vegetable Crops

Another vegetable production season in Florida is underway. Growers are busy cleaning, preparing, treating and seeding vegetable fields in many parts of the State. How many mistakes have been, are being and will be made on vegetable farms in Florida during the 1972-73 season? The exact number will never be known, but from past experiences, it is safe to say that many will be made. The truth of the matter is that many of the mistakes being made each year in vegetable production can be completely avoided or, at least, minimized in severity by careful planning well in advance of the planting season. Such planning starts with the selection of crops, land, varieties, cultural methods, etc., and carries through to harvest and the final disposition of crop residues. One mistake made somewhere in between can mean partial to complete crop failure.

Following are some of the factors which should be given careful consideration before a crop is planted. To list every aspect which might need to be considered and further to discuss the ones listed in detail would be next to impossible. The checklist is simply intended to serve as a general guide to be used in advance planning in an effort to avoid the more common mistakes made in vegetable production in Florida.

Checklist of Items to Consider in Advance Planning

1. Crop Selection - Type, variety, marketability, competition, scheduling plantings, weather hazards, pest hazards, etc.

2. Site Selection - Land adaptability, weather history, water supply, water quality, etc.

3. Land Preparation - Drainage, irrigation, clearing, leveling, liming and other amendments.

4. Soil Pest Control - Nematodes, insects, diseases and weed seeds, pesticide residues, etc.
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5. Fertilization - Land use history, rates, sources, timing, placement, supplemental applications, minor elements.

6. Disease and Insect Control - Equipment, pesticides, residues, scheduling.

7. Weed Control - Herbicides, application equipment and methods, cultivation, residues.

8. Harvest and Handling - Scheduling, labor, harvest equipment, grading, packing, marketing, destruction of crop residues.


In considering items in the above checklist, use key words to ask yourself questions. For example, under #1 - Crop Selection:

a. Types - Should I grow tomatoes? Ground or trellised? Vine-ripes or mature-greens?

b. Variety - What variety should I grow? Is it resistant to diseases? Does it have good market acceptance?

Growers will probably have other items to add to the list. Planning decisions should be written out for reference during the growing season. This type of exercise can lead to good record keeping and, also, to budgeting for future crops.

(Montelaro)

D. Vegetable Transplants: Soil Mixes and Containers

Interest in the use of containerized transplants has again increased recently in many areas. While most growers have relied on buying their transplants from others, a few have attempted to grow their own. The basic technology of producing container grown transplants has been available for a number of years. However, in view of some problems that growers have had in producing their own container transplants, a review of a couple of factors seems to be in order. These factors are soil substitutes and peat pots.

Soil substitutes offer the advantages of being relatively inert and "sterile," generally uniform, readily available, lightweight, and low cost. Generally, several of these soil substitutes are combined to arrive at the final "soil mix" for placement into the growing containers. Some of the substitutes used are vermiculite, perlite, calcined clay, various types and sources of peat, sand, and occasionally wood shavings and bark. The soil mixes can be mixed according to several popular "recipes." The University of California Soil Mix and the Cornell modification of the mix are two that are widely used. (Information on these mixes can be obtained by writing the author.) Commercially mixed formulations are readily available in most areas and are sold under various
names and brands. The "recipes" usually call for the addition of nutrient sources and pH adjusting materials, as well as the soil substitutes themselves in the mix. Often, growers modify the "recipes" to fit their own preferences or particular needs of their operation.

When transplants are grown in individual containers or holders, the outlet for the transplant will often determine what type of container is used. Transplants grown for use in commercial vegetable production are usually in containers which can withstand some handling but are capable of decomposing or losing their integrity when placed in the soil. Most frequently, this means that they are some sort of pressed peat or soil composition. A new approach has been to grow the plants in such a manner that the transplant set in the field is without a container. (Not to be confused with "bare rooted" transplants.) The soil mix the plant is grown in is retained by the roots which have permeated it, thus, forming a "container" the shape of which having been determined by the container originally holding the mix.

The peat or soil pots are planted together with the plant. In this manner, "transplanting shock" often observed in "bare rooted" transplants is virtually eliminated. Properly managed, the walls of the container offer little resistance to the penetration of the roots of the plant. The key to the correct management practices is moisture. Peat pots should be kept moist continuously. Alternating wet and dry conditions renders the peat leathery in texture which hinders root penetration. This same type of hardening of the walls can occur if the pots are set in the field when the soil is extremely dry and provisions for adding moisture are not used.

The grower's combination of soil mix and type of container is based upon availability, cost, experience, and results. Differences in plant management techniques (watering, fertilizer application, etc.) account for most of the errors encountered by growers when changing mixes or containers. Thus, once a system is "mastered" very little should be changed. That is not to say that one should not try new ideas or items, but one should not institute changes into the entire system at once. Small scale trials can yield many differences, without jeopardizing the entire crop.

(Kostewicz)
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II. VEGETABLE GARDENING

A. Minigardens

1. Introduction - Those not having enough space for a larger garden should consider minigardening - the technique of growing vegetables in containers. To have a minigarden, about all the space needed is a sunny spot on a balcony, patio, porch, walkway, windowsill, doorstep, or lawn.

Vegetables grown in this manner offer not only fresh, nutritious produce, but also may be quite ornamental.

2. Containers - Almost any container holding enough soil mix to support the plant when fully grown may be used. Examples of containers are plastic or clay pots, a plastic bucket, an old pail, a bushel basket, a wooden box, an old bath tub, or even a plastic bag.

The size and number of containers can vary with the space available and the number of plants wanted. Six-inch pots are satisfactory for chives and herbs. Ten-inch pots are better for radishes, green onions, miniature tomatoes, ornamental peppers, and strawberries. Where sufficient space is available, 5-gallon plastic trash cans are suitable, since they are easy to handle, yet large enough for larger vegetables such as tomatoes. Half-bushel or bushel baskets make good, light-weight containers. Larger containers in the twenty to thirty gallon range are excellent, but are somewhat difficult to move about if necessary. Large drums and barrels are popular for growing strawberries in holes or slits along the sides. Plastic laundry baskets are attractive and can be modified by lining with plastic sheeting.

3. Soil - Soil taken from the yard or garden may be used, but soil substitutes offer certain advantages. A ready-to-use soil substitute, or synthetic soil, prepared from a mixture of horticultural vermiculite, peat moss, and fertilizer, is sold at garden supply stores. For minigardening, it has several advantages over soil. It is free of plant disease organisms and weed seeds, it holds moisture and plant nutrients well, and it is very lightweight and portable.

The ingredients for preparing a soil substitute might be:

(a) Horticultural grade vermiculite (1 bushel)
(b) Peat moss (1 bushel)
(c) Limestone or dolomite (1 pound)
(d) Superphosphate (1/4 pound)
(e) Fertilizer (1/2 pound)

Add a little water to reduce the dust during mixing, and mix thoroughly.

4. Starting from Seed - Plants may be started in each minigarden by using seeds or transplants.
Rather than in rows, vegetables might be seeded, or transplants set, solidly over the entire soil area of the container. Allow sufficient space for the plants to develop. Therefore, a container might hold several plants of radishes spaced an inch apart, but only one tomato plant.

5. **Fertilizing** - To keep plants growing rapidly and producing well, apply additional fertilizer about 3 weeks after the plants have reached the two-leaf stage and again every three weeks. A complete garden fertilizer such as 6-6-6 or 5-10-5 should be used, both for preparing the soil mix and for later applications. It can be applied dry or mixed with water. In either case, apply one level teaspoonful per cubic foot of soil. Mix the fertilizer into the top 1/2 inch of soil and water thoroughly.

6. **Watering** - Water each time the soil becomes dry down to a depth of 1/8 to 1/4 inch. Overwatering will slowly kill your plants due to lack of oxygen. Prepare the container to allow for proper drainage.

7. **Light** - All vegetables grow better in full sunlight than in the shade. If a choice is available, locate the vegetable fruiting plants (tomatoes, for example), where they will get the most sun, and place your leafy and root vegetables in the shadier areas.

**B. Know Your Vegetables - Sword Bean**

The Jack Bean (*Canavalia ensiformis*) and the Sword Bean (*Canavalia gladiata*) are very similar beans which are occasionally grown in some home gardens around the State. Other names for them are: Chickasaw Lima Bean, Brazilian Broad Bean, Coffee Bean, Ensiform Bean, Horse Bean, Mole Bean, Go-Ta-Ki, Overlook Bean, Pearson Bean, Watanka, and Raba de burro.

In both species, pods reach a length of 10 to 14 inches, and a width of 1 to 1 1/2 inches. Seeds are large, 1/2 to 3/4 inch long and nearly as broad. The two species differ mainly in the length of the seed hilum (scar). The hilum of sword bean (*C. gladiata*) is more than one-half the length of the seed, whereas that of the Jack Bean (*C. ensiformis*) is only about one-third as long as the seed.

There probably are many varietal and environmental variations in the growth habit of the plant; however, it appears that the jack bean plant is bushy in comparison with the vining nature of the sword bean plant. One north Florida gardener noted that one sword bean plant covered his entire garden of 400 square feet.

Neither bean has commercial importance in this country. Both are reported to be edible in the young tender immature stage by slicing and boiling the tender pods, or peeling and using the seeds as broad beans. However, reports have also indicated the possibility of mild toxicity if beans are eaten in large quantities. In fact, the boiling water should be drained off to remove any poisonous substances which might exude from the beans. Pharmaceutical companies have shown some interest in the beans as a possible source of the enzyme urease.

*(Stephens)*