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

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VEGETARIAN NEWSLETTER 79-8

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THE VEGETARIAN NEWSLETTER

I. NOTES OF INTEREST

A. Dr. Maynard Takes Over As Chairman of Vegetable Crops

Dr. Donald N. Maynard took over as Chairman of the Vegetable Crops Department in mid-July. Florida was lucky to get a person of Don's caliber. He is a well recognized vegetable horticulturist with experience in teaching, research and extension.

"Don" plans to spend a goodly portion of his time over the next year meeting vegetable growers, county agents and other industry people all over Florida. Anyone visiting the campus is invited to stop by and visit with us. It will give us a chance to introduce Don as well as showing off our brand new building.

Finally, everybody associated with the vegetable industry in Florida owes Dr. C. B. (Chet) Hall a vote of thanks. He took over responsibilities as Acting Chairman (as well as taking care of his regular chores) for a year and did a commendable job.

(Montelaro)

B. Two New Fact Sheets on Weed Control

Two new VC Fact Sheets listed below are being distributed to County Extension Offices. Additional copies may be requested from C. M. Hinton, IFAS Building 664.

VC-16, Weed Control in Market Vegetable Gardens
VC-17, Control of Florida Weed Species

(William)

C. Tomato Growers' Institute Plans for 1979 - Second Announcement

Plans have been finalized for the Annual Tomato Growers' Institute. It is set for Tuesday, September 18, 1979 and is to be held at 1303 17th Street (County Agent's Office) Palmetto, Florida. The program promises to be a good one. A detailed copy of the program will be mailed out soon. Please put this date on your calendar now and make definite plans to attend.

(Montelaro)

D. Index for 1978-79 Vegetarian Newsletters

The 1978-79 index to the Vegetarian Newsletter is enclosed for your reference. Based on our production season for vegetables, the index contains the titles of articles printed between July 1, 1978 and June 30, 1979. We suggest that the index and the twelve monthly issues of the Vegetarian Newsletter beginning with 78-7 and ending with 79-6 be maintained as a reference. Previous indexes of the Vegetarian Newsletter are available upon request from this office beginning with a general index from the early fifties to 1971 followed by yearly indexes thereafter.

(Montelaro)
II. COMMERCIAL VEGETABLE PRODUCTION

A. Efficient Use of Fertilizer in Vegetable Production

Cost of producing vegetables in Florida has increased rapidly over the past few years. Fertilizer accounts for a very significant part of that total cost. It ranges from 7% to 28% depending on the crop, the season and the area of production. (Economic Information Report 110, D. L. Brooke) Even though vegetable growers are aware of this fact, we see considerable wastage in fertilizer use.

Management practices which might be modified or refined for the most efficient use of fertilizer are certainly worthy of close consideration by vegetable growers in Florida. The two major points to be covered are: (1) use of residual fertilizer and (2) use of necessary fertilizer materials only.

Residual Fertilizer Use - Successive cropping on the same land offers vegetable growers an opportunity to use residual fertilizer through good management. The most important tool in the conservation and use of residual fertilizer is a soil test. Immediately following completion of harvest and thorough disking of the crop, a soil test should be taken to determine nutrient status of the soil. This information should be used to adjust fertilizer application for succeeding vegetable or cover crops. A good soil test can indicate quite accurately whether or not more phosphorus (P), potassium (K), calcium (Ca) and magnesium (Mg) is needed. Nitrogen needs can be estimated from certain considerations including soil type, crop residues turned under, and the number, intensity and time of leaching rains following recent nitrogen applications. Nitrogen applications generally are needed most during extended cold periods on the organic soils. The amount can be reduced during the warm weather of early fall and late spring.

Phosphorus, unlike K, Ca and Mg, does not leach readily. Many of our old vegetable lands are high or very high in residual P. Growers should take advantage of residual P by reducing rates accordingly. A warning is in order when P rates are to be reduced in cold soils -- apply a small amount of P near planted seed or transplant. Potassium, Ca and Mg rates can be adjusted on the basis of soil test information, also. Calcium and Mg can be supplied inexpensively with high calcic or dolomitic limestone depending on the pH of the soil and specific crop requirements.

Micronutrients need not be applied for every crop or even every season. In the absence of soil tests, a "shotgun" application once every year or two should suffice except in very high pH soils. In addition, growers can reduce or eliminate those micronutrients generally applied in fungicides to certain crops. By reducing or eliminating soil application of micronutrients found in fungicides, vegetable growers may not only save money but actually lessen the chances of toxicities from over supply of these elements.

One of the best ways to conserve residual fertilizer is to plant a cover crop upon completion of harvest if not followed immediately by another vegetable crop. A good cover crop not only "traps" residual fertilizer, but may increase soil nitrogen and improve overall efficiency of fertilizer use in subsequent vegetable crops.

Timing of application can affect efficiency of fertilizer use, also. Splitting fertilizer application into two or three times lessens the chance of heavy nutrient losses under heavy rainfall conditions.
Use of Necessary Fertilizer Materials Only - There are still too many unnecessary fertilizer materials used on vegetable crops in Florida. These include: (1) excessive amounts of the required nutrients applied to the soil, (2) expensive sources of soil applied materials that may not produce expected results and (3) use of foliar materials that may not only be unnecessary, but actually self-defeating in that they may reduce pesticide effectiveness and possibly injure the plant itself.

Vegetable growers, who review their fertilizer programs on a regular basis, will find that they can effect worthwhile efficiencies. Any suggested changes can be tested on a small scale right on the farm in the beginning. A little time and money spent in "on-farm" testing and careful management can pay good dividends to vegetable growers.

(Montelaro)

B. Weed Shifts and Year-Round Weed Management

Rather than allow the composition of weed populations to shift towards species that resist conventional control methods, vegetable growers can take the initiative by managing weed populations throughout the entire year to shift the species composition toward manageable communities. Perhaps the first step is to manage the plant growth in fields during the summer fallow period. Careful selection and rotation from year to year of cover crops can reduce populations of shade intolerant weeds such as nutsedge and modify nematode populations by reducing host plants. Year-round crop rotations involving different cultural requirements such as full-bed mulch culture versus row crop culture can modify weed infestations. In addition, time of cultivation or plowing can reduce weed populations, especially when fields are plowed prior to reproduction of the weeds.

Depending on the weed infestation and label registrations, growers may apply certain herbicides during the summer fallow to aid control of specific weed species. For example, growth of perennial grasses may be suppressed with dalapon herbicide. Also, glyphosate may be applied in certain cropping sequences for control of a broad spectrum of perennial weeds. Research results in Florida indicate that split applications of glyphosate followed by cultivation within a couple of weeks often controls nutsedge better than a single application at a higher rate without cultivation. Because both of these herbicides inhibit amino acid or protein synthesis, best results can be obtained when the weeds are growing rapidly and requiring these "biochemical building blocks". For more information about controlling perennial nutsedge and grasses, read VC Fact Sheets, VC 12 and 13.

Prior to planting and during the growing season, growers can improve the competitive advantage of their crop by properly preparing the seed or production bed. All live plant debris should be plowed and disced under several weeks before planting. Apply multipurpose soil fumigants at exactly the correct rate and when soil moisture is at or very near field capacity for maximum control of crop pests. Proper application of preemergence herbicides can provide more efficient control of annual weeds during the initial stages of crop growth. Competitive crop densities and planting arrangements can produce a dense canopy which suppresses weed growth by shading. Often, an equidistant triangular planting arrangement will compete more effectively than crops planted in widely spaced rows. Selection of competitive varieties or crops that form dense canopies can suppress weed growth and reduce infestations of some weeds.
Growers can manage weeds on a year-round basis and shift weed species toward manageable communities. In addition, populations of other non-mobile pests such as nematodes may be suppressed with careful selection of crops and crop rotations. Although specific weed management practices will vary in each region, production efficiencies can be improved with imaginative, year-round management strategies.

(William)

III. VEGETABLE GARDENING

A. Vertical Vegetable Gardening System

Growing vegetables upright in a supported position has been a tried and true way to save space in a small garden or greenhouse. The usual methods have been trellising and staking, both requiring vining or tall growing plants. A traditional technique for small non-vining plants has been the strawberry barrel, which involves growing the plants in an upright container, in this case a barrel.

Now comes a system for growing plants (vegetables) in upright standing pipes. The patented system should be on the market and available to gardeners in the relatively near future.

The system utilizes two perforated pipes, one small diameter and the other larger. The smaller diameter pipe is inserted into the larger diameter pipe, leaving a free space between the two pipes. The pipes may be made of metal, plastic, screening, or other suitable material.

Organic fertilizer is put inside the inner perforated pipe. In the free space between the two pipes is placed the substrate of artificial soil mixture. The mixture inside the larger 6 to 8 inch diameter outer pipe completely surrounds the inner pipe.

Openings are made in the wall of the outer pipe to accommodate the planting by seed or plant of a wide assortment of vegetables. When plant roots develop they enter into the inner pipe and feed on the nutrient mix. Periodic clean out and renewal of the inner core of nutrients is possible via water pressure or other means.

The system also includes a mechanism for rotating the pipes to expose plants evenly to the sunlight.

The principles involved in such a system appear to be sufficiently sound for the production of a number of different kinds of vegetables. Interested gardeners finding such systems on the market should try them experimentally under Florida growing conditions. Vertical gardening may be just the answer for gardeners with limited space, problem soil, or a desire to try something different.

(Stephens)

B. Know Your Vegetables - Kangkong

Kangkong (Ipomoea aquatica Forsk or Ipomoea reptans Poir), also known as water glorybind, water spinach, water convolvulus, and swamp cabbage, is an
important green leaf vegetable in Southeastern Asia, Taiwan, Malaysia, and Indo-
china, according to Martin and Ruberte, "Edible Leaves of the Tropics". It grows
everywhere in the waters of southern China, and is cultivated in countries such as
Ceylon. Kangkong has not become very popular elsewhere, particularly here in
Florida where it is seldom seen even in home gardens. Our climate is favorable,
and given wet soil conditions it should produce well here. However, precautions
should be taken to see that it does not become an established weed in our water-
ways.

There basically are two forms - upland (dry) and swamp (wet). The plant
looks somewhat like the pickrel weed of Florida lakes. The slick surfaced leaves
are arrowhead shaped - five to six inches long, narrow and pointed. It is a
trailing hollow vine with alternate leaves and vertical branches arising at the
leaf axils. The succulent foliage is light green in color and produces a white
flower, followed by a 4-seeded pod. There are narrow and broadleaf types, some
of which look a lot like sweet potatoes.

In regions where grown, two types of culture are used - dry and wet. In both
cases, large amounts of organic material (compost, manure, etc.) and water are used
to advantage.

In dry culture, the plants are spaced 5 inches apart in raised beds. The
vines may be trellised, which is the advised way for home gardens. Harvest may
start 6 weeks after planting. Kangkong is started from seed or cuttings. Plants
are often grown in nursery beds for transplanting later to the garden. Cuttings
from plants in the nursery beds is the usual method.

In wet culture 12-inch long cuttings are planted in mud and kept moist.
As the vines grow, the wet areas (paddies) are flooded to a depth of 6 inches and
a slow flow of water through the field is maintained similar to methods for wate-
cress. The water flow is stopped for purposes of fertilization. Weeds are con-
trolled by the flooding. Harvest begins 30 days after planting. When the succu-
ulent tips of the vines are removed, lateral and upright branches are encouraged.
These are harvested every 7-10 days.

Plants switch to flowering stage with the short days of winter. During
flowering, less vegetative material is available for harvest, but heavy fertilizing
and pruning tends to produce more leafy growth.

The plants are perennial and grow year round under tropical conditions. Al-
though beds will continue to grow for several years, it is best to treat the crop
as an annual just as is done with strawberries in Florida. Build-up of disease,
weed proliferation and soil fertility problems in older established beds makes
annual culture desirable.

Practically all parts of the young plants are eaten. Since older stems
become fibrous, young succulent tips are preferred. These are eaten fresh or
cooked like spinach. Cooking in oil is common. Due to the bland flavor, some-
thing should be added to enhance it.

The protein content of the leaves is high (1.9 - 4.6%); also, kangkong is
a good source of Vitamin A, calcium, iron, and phosphorus.

(Stephens)