VEGETABLE CROPS DEPARTMENT
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. Using Minor Elements Efficiently During Period of Shortages

Recent price increases and shortages of materials have given ample reason for vegetable growers to scrutinize each cost item in production more closely than ever before. This article, the fourth in a series covering ways and means growers can better cope with the various problems created by shortages and rising costs for fertilizer, deals with minor elements. Admittedly, minor elements have been only a minimal part of total fertilizer costs, but when combined with beneficial side effects of a modified program, the results of a more efficient use program may be well worthwhile in the final analysis.

In the May, 1972 issue of the Vegetarian Newsletter, we discussed the "Complexity of Minor Element Nutrition." In it, we gave "ten rules of thumb" to help growers insure success in adjusting the minor element program for vegetable production. Two of the rules are worthy of further consideration now. They are:

1. Take into consideration the minor elements supplied in the zineb, mane, ferbam and basic copper fungicides. The minor elements from these fungicides enter plant leaves and are used in nutrition of plants. They can supply part or all of the needs for one or more of the minor elements depending on the fungicides used and number of applications made. In certain instances, continuous use of one can cause toxicities from heavy absorption of the minor element found in the fungicide.

2. Do not over-supply the soil with minor elements. Excesses are harder to correct than deficiencies in a soil.

The tendency among vegetable growers over the past few years has been to over-supply minor elements to their crops. Probably the reasons were that (1) cost was not excessive, and (2) there are no reliable soil tests to indicate available supply in the soil. Using the "shotgun" approach of applying minor elements for each crop planted may not be only wasteful and costly, but it can result in accumulation of toxic levels of one or more of the elements in the soil. Excessive accumulations as such are costly to correct and even with the use of the best technology available may not be completely overcome, with the final results being reduction in yield.

Although it is not easy to manage a minor element nutrition program to avoid the problems discussed above entirely, it is possible to give a few suggestions which, if followed, would certainly tend to lessen the hazards and cost of overuse. The most valuable tools the grower can develop are: (1) a historical record of the soil, and (2) experience. In order to develop these tools, growers are advised to:

1. Once every year or so, obtain minor element data in soil tests.

2. After initial application of the minor elements on new soils, reduce amount in subsequent applications unless or until specific deficiencies are noted.

3. In subsequent season, take into consideration the amount of copper, zinc, manganese and iron which will be applied in fungicides to the crop and reduce amount proportionately in the soil.
(4) Try to avoid overuse of fungicides high in metallic content. Such materials can build up to toxic levels rapidly.

(5) Each season review the minor element program and readjust on the basis of accumulated soil test data, experience, crop to be grown, soil types, problems encountered, fungicide program to be used, etc.

Within a few years, growers giving close attention to the above considerations can certainly reduce costs for minor element nutrition and lessen the chances for toxic build-up. In the long run, it can mean more economical vegetable production to the grower willing to work at it.

(Montelaro)

B. Potential for Dry Edible Beans and Peas in Florida

Skyrocketing prices for dry edible beans and peas the past year appear to have created interest in the potential for production of these crops in Florida. Inquiries have come from users who ask about the possibility of a less expensive local supply, and from growers looking for promising crops which can be harvested mechanically. The answers that can be given are incomplete at best. They are based on the information available on soybeans from agronomists and on green beans, lima beans, green peas and southern peas from horticulturists. Soybeans are being grown successfully from North Central to West Florida now and the others are grown throughout the State as fresh vegetables.

The biggest drawback to dry edible bean and pea production in Florida is high rainfall and humidity near the time of harvest. A prolonged period of wet weather can result in severe losses in quality if not the total crop.

It must be emphasized here that the University of Florida, because of lack of knowledge and experience, is not presently recommending or even encouraging the production of dry edible beans and peas other than southern peas in Florida. Anyone considering production of these crops for the first time is best advised to plant a limited acreage for a season or two to gain the valuable experience necessary to succeed on a large scale. Remembering that they are not based on adequate research and experience, but hastily drawn from knowledge of similar type bean crops, following are some hints that might be used advantageously by those wanting to try small plantings of edible beans and peas for harvest in the dry stage.

(1) Check potential markets to help select the type and variety to be grown. Some common names for the various types are pinto beans, red, black or white kidney beans, navy or pea beans, southern peas, dry garden peas, dry lima beans, etc. Processors buying a crop are often willing to obtain seed and furnish technical advice on growing and handling.

(2) When the variety has been selected, determine the approximate time required to grow the crop and schedule planting date so that the harvest and drying period comes in the most probable dry season.

(3) Check on mechanical harvester to be used and design row width and shape to fit the equipment.
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(4) Use a fertilizer program recommended for soybeans in North, Central and West Florida and for bush green beans (with additional sidedressing or two to compensate for longer season) in South Florida.

(5) Check labels for approved pesticides to be used.

(6) Have adequate storage and possibly drying equipment available by harvest time.

The above are only a few of the things that growers should anticipate before venturing into production of new crops like dry edible beans and peas. One oversight can mean total failure.

(Montelaro)

C. Selection and Use of Herbicides in Vegetables

Herbicides are an important "tool" the grower uses to control weeds in his crops. The word "tool" is stressed because there are other practices or tools the grower can use to help in his overall weed control program on a year-round basis. For example, "off season" management of his cropping area such as cover crops, flooding, fallow cultivation and others tend to keep the weed population at manageable levels. Other tools or practices the grower can use are waste area weed control (fence rows, canal banks, ditch banks, etc.), spot treatment of hard-to-control weeds in the fields, and the old practice of cultivation in the crop itself. Many of these and others are used in weed control programs to effectively keep weeds in check.

To do the job they were intended to do, tools must be used properly. Some guidelines for proper use of herbicides are:

(1) Make yourself aware of what materials are cleared or labeled for use on vegetables of interest.

(2) Select the material for the problem weeds in field to be used. (For example, use a material effective on pigweed if pigweed is the problem.)

(3) Use the proper rate, timing and method of application for the selected material.

(4) Calibrate the application equipment in the field prior to actual use. Make sure equipment is in working order in advance of the time needed.

   a. Pressure - usually 20-40 psi.
   b. Pattern - effectively covering the desired area.
   c. Delivery - Are the nozzles worn? Replace periodically so that application rate is correct. Application volume usually in 30-50 gallon per acre range.
   d. Agitation - Good agitation is necessary to keep wettable powders in suspension thereby preventing fluctuations in the concentration of the spray material.

(5) Perform the recommended tasks necessary for any particular material as suggested on the label. For example, cross discing, rototilling or irrigating are frequently listed as steps to be used for many preplant materials.
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Environmental factors after an herbicide has been applied can drastically affect the weed control of that material. For example, too much or too little rainfall can affect the leaching and activation of the material in the soil. It is important, then, for the grower to realize that the best potential for weed control, since weather following application cannot be controlled, is obtained when the right material is used at the correct rate, time and place. This serves to optimize the weed control results for whatever weather follows.

(Kostewicz)

II. HARVESTING AND HANDLING

A. Postharvest - Potatoes

Potatoes are generally treated as "hardware items" by produce handlers. In a sense, this nomenclature may not be too far off when comparing the potato with some of the very soft, quickly perishable items. However, fresh potatoes (like all fresh fruits and vegetables) are living entities and are subject to the same types of disorders and defects (including bruising) as other commodities. In some respects, the potato requires more care than many other vegetables because of additional steps in the harvesting-handling operations. For example, in order to reduce the amount of skinning, it is necessary to kill the potato vines prior to the harvest operation. This "sets" the skin and greatly reduces damage to the potato during harvesting and packing. Of course, maturity is an important factor in the quality of the potato, but it is also important in the harvest operation because an immature potato is much more subject to skinning and bruising than one that is fully developed. Cold potatoes bruise more easily than warm potatoes, so temperature during harvest must also be taken into account.

The physical aspects of handling also contribute greatly to bruising and skinning. Even if all the physiological conditions mentioned above are optimum for harvest, a poorly adjusted harvester, a long drop from the harvester to the truck, rocks, or sharp objects in the truck can quickly increase the bruising and skinning and reduce the grade and storing ability of the potatoes. It also decreases the desirability of these potatoes to the consumer because even though the grade may not be reduced, bruising and skinning of any amount detracts from appearance.

After potatoes are harvested, washed, graded and packed, the problems are not all over. Potatoes behave very differently when held at different temperatures. The most suitable temperature is influenced by season, curing and use for which the potato is intended. Most Florida potatoes are not stored for any length of time. The major portion of the storage period is related to selling and transportation. Potatoes that are not cured should not be held below 50°F. Even at 50°F, there is considerable accumulation of reducing sugars in the potatoes. This is an enzymatic reaction which converts sucrose to glucose and fructose. The reducing sugars react with other compounds when heated and can cause dark-colored potato products (chips, fries, etc.). The reaction is reversible and, in fact, potatoes that have been exposed to moderately low temperatures can be "conditioned" by holding them at 65°F to 70°F for a few days in order to convert some of the reducing sugars back to sucrose. This process has not been too successful with early crop potatoes. When potatoes are stored below 38°F, they develop a sweet taste. On the other hand, potatoes should not be exposed to high temperatures and particularly not to direct sunlight. High humidity during storage will retard shriveling.
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Many of the problems with potatoes (as with most crops) are due to harvesting and handling procedures. There are also a number of problems related to retail marketing and consumer handling. The National Potato Promotion Board published a summary report in October, 1973, entitled An Analysis of Potato Use and Consumer Perception which covers the consumer thoughts on and uses of potatoes. This report should be of interest to anyone marketing potatoes.

(Hicks)

III. VEGETABLE GARDENING

A. Timely Gardening Topics

As you recall, the purpose of the "Timely Gardening Topics" is to supply agents with material for weekly newspaper and radio shorts on a regular basis.

(1) Timely Topic for week of March 14-20.

Question

I am particularly fond of butter beans and would like to know what kind to plant.

Reply

Butter beans (a nickname for the smaller seeded Lima beans) grow well in most Florida gardens, especially when planted now. The most common types range from the large seeded Fordhook 242 to the small seeded baby Limas, such as Henderson's Bush Lima. Perhaps the most popular variety is Jackson Wonder, a speckled butter bean of very fine eating quality; fresh, canned or frozen. A pole type that bears well in Spring and Summer is Florida Butter Speckled. This one climbs, so support it on poles, stakes or on a trellis.

(2) Timely Topic for week of March 21-27.

Question

I keep hearing that fertilizer is becoming scarce. Are there ways I can cut down on the amount I need to use in my vegetable garden?

Reply

Here are a few suggestions that could help you conserve fertilizer.

(a) Have soil tested - Your soil may be more fertile than you think.
(b) Do not apply inorganic fertilizer more than 2-3 days before planting.
(c) Apply only a light application at planting, followed by more frequent sidedressings according to plant needs.
(d) Place a 6-inch wide strip of plastic mulch directly over the fertilizer band to keep fertilizer from washing out. In fact, a mulch of any good material strength would help.
(e) Use organic fertilizer, such as chicken litter and compost whenever available.
(f) Keep soil moist, but do not drench.
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(3) Timely Topic for week of March 28-April 3.

Question

Many of the vegetable seeds which I planted this spring have failed to come up. What am I doing wrong?

Reply

There are several reasons for poor stands in the garden, any or all of which could be your problem. Briefly, here are some of the more common ones: (a) old or weak seed, (b) seed planted too deeply, (c) seed not treated with fungicide to keep from rotting, (d) soil too cold or hot for particular crop's germinating requirements, (e) insect injury to seed or seedling, (f) seedlings eaten by birds or rodents, (g) seedling decay (called "damping-off"), (h) fertilizer burn, (i) soil too wet or dry, (j) soil too hard or crusty.

(4) Timely Topic for week of April 4-10.

Question

I am a minigardener. Please tell me what kind of soil to use in my containers for growing vegetables.

Reply

Many ready-prepared soil substitutes are available from nurseries and garden supply stores. Most are satisfactory. Containers may be filled with clean sand, sawdust, wood shavings, or vermiculite. Apply fertilizer solution twice a week to keep soil wet to the bottom of the container. Use highly soluble fertilizer wherever possible, and mix at rate of 2 to 3 teaspoonsful in gallon of water (or follow label directions). Here are two soil substitute mixes which have proven successful.

1 bushel of vermiculite
1 bushel of peat moss
1/4 cups dolomite
1 cup of 6-8-8 fertilizer (mix thoroughly)

1/2 garden soil with 1/2 organic (peat, cow manure, etc.)
1/2 cups of dolomite
1 cup of 6-8-8 fertilizer (mix thoroughly)

(5) Timely Topic (Bonus - good any time).

Question

I would like to have vegetables growing year-round in my garden. Is this possible in Florida?

Reply

While many vegetables grow best during certain months of the year, with careful planning, you may have vegetables all year. Rotation of vegetable crops along with cover crops is more important than usual when something is planted all year long.

(Stephens)
B. Know Your Vegetables - Chives

Chives (Allium schoenoprasum) are perennials belonging to the onion family. The small, bulbous, onion-like plants grow in clumps; leaves are slender, tubular and hollow, about 6 inches long. They produce very attractive violet-colored flowers.

Chives are a native of northern Europe and parts of North America. While not an important commercial crop in Florida, they are a good garden item. They can be grown on most of the soil types found in Florida.

The tender leaves can be harvested at any time during the season and used fresh. The young tender fresh leaves possess a delicate onion flavor. The bulbs or dried leaves are seldom used as they do not have the pleasant flavor. While chopped leaves can be used with many foods and in many herb mixtures, they are excellent in salads, omelets, stews and soups.

Planting - Throughout Florida, chives may be planted August through March, using either seed or sets. Most gardeners use sets. It is a perennial, but the clumps should be divided and reset every 2 to 3 years to prevent overcrowding. The bulbs can be set in about the same manner as onion sets and require about the same care. Place the sets at a depth of about 1/2 inch and about 3 inches apart.

In northern areas, the clumps are sometimes dug up and potted, then grown indoors for winter use. Chives are often retailed potted in this manner.

(Stephens)