August 5, 1977

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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 77-8

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I. NOTES OF INTERESTS

A. Commercial Production Guides

The Okra Production Guide (Circular No. 175E) was revised and the Chemical Weed Control Guide for Florida Vegetable Crops (Circular No. 196F) was reprinted recently. Only 3,000 copies of each guide were printed. County Extension offices will receive a small, but adequate supply of each guide for county needs. Agents are asked to use sound judgement in distributing these guides. Because commercial production guides contain information that home gardeners cannot possibly use, distribution should be restricted to commercial growers. Agents needing a few extra copies can obtain them from a limited supply retained by the IFAS, Publication and Distribution Center, Bldg. 664.

A limited supply of Pepper Production Guides (Circular 102D) is available and may be requested from the Publication and Distribution Center.

(William)

B. Tomato Growers' Institute -- Last Announcement

Plans have been finalized for the Annual Tomato Growers' Institute. It is set for Thursday, September 8, 1977 and is to be held in the Mounts Agricultural Building (county agent's office), West Palm Beach, Florida. The program promises to be a good one. So please put this date on your calendar now and make definite plans to attend.

(Montelaro)

C. Index for 1976-77 Vegetarian Newsletters

We consider our production season for vegetables to be from July 1 to June 30. With this, the first issue of the new production season, we are enclosing an index for the twelve monthly issues of the past season (July 1, 1976 to June 30, 1977).

County Extension Agents wishing to maintain a reference file of the Vegetarian Newsletter should place last season's issues in a folder together with the index. When needed, it is a simple matter to check each annual folder for the material desired. There are on file in this office indexes for the 1971-72, 1972-73, 1973-74, 1974-75, and 1975-76 seasons, as well as a "catch-all" index for the more important articles spanning from the early fifties to 1971. These are available upon request from this office.

(Montelaro)
II. COMMERCIAL VEGETABLE PRODUCTION

A. Marvelous Metric Magic

Slowly, very slowly, the U.S. is entering the "metric age". Since Dr. J. F. Kelly's article in the Vegetarian Newsletter (75-4) entitled "U.S. Now Entering Metric Age", increased public exposure and awareness of the metric system has occurred.

In agriculture, we too are being exposed to the metric system. Note, for example, the chemical labeling on the next pesticide label that you see, the next weather report, or the next package of food or processed food products. Chances are that you will recognize measurements in both the metric and English systems. However, one future day, we too are going to be expected to use the metric system!! So let's get ready!!

Rather than learn or try to memorize the exact conversion factor for each measurement, you may begin to learn a few simple and everyday relationships in which you can build your future knowledge of the metric system. First, you'll recognize meters (m), grams (g), and liters as the basic units of measurements. Remember that you can divide these units by factors of 10, 100, and 1,000 to obtain deci-, centi-, and milli-units such as centimeters (cm) or milligrams (mg). You may also multiply these basic units by 1,000 to obtain kilograms (kg) or kilometers (km). The marvelous aspect of the metric system is that we no longer need to remember the many specific conversion factors or non-related relationships that exist within the English system such as 43,560 sq. ft. equals one acre or 640 acres equals one sq. mile. Instead, 10,000 sq. meters (100m x 100m) equals one hectare (ha) and 100 hectares equals one sq. kilometer (km²).

Second, you may picture or visualize in your mind the following simple conversions or "meter sticks":

- 1 quart similar to 1 liter
- 2 pounds similar to 1 kilogram (kg)
- 1 yard similar to 1 meter (m)
- 1 inch equals 2.54 centimeters (cm) (THINK METRIC advertisements)
- 1 lb/acre similar to 1 kg/ha (pesticide or yield conversions)
- 1 English ton similar to 1 metric ton (fertilizer conversion)
  HOWEVER, 1 English ton/acre similar to 2.2 metric tons/ha (fertilizer or yield conversions on area basis)
- 1 hundredweight/acre similar to 1 quintal/ha (yield conversion)
- 40 inch row spacing equals 100 cm row spacing
- 50 mph equals 80 kmh
THE VEGETARIAN NEWSLETTER

Another useful method of becoming acquainted with linear measurements such as centimeters is to measure the distance between the tips of two fingers on your hand and compare this distance to a common row or plant spacing that you're already familiar with. For example, the distance between the tip of my index finger and thumb is 20 cm which is similar to half the distance between recommended cabbage, okra, pepper, and potato plant spacings within the row.

Depending on your needs, you should become acquainted with the above simple, everyday conversions and relationships. However, when actually calculating pesticide rates, fertilizer conversions or rates, crop yields, or whatever; always rely on specific conversion factors which can be obtained from numerous tables in bulletins or from agricultural supply stores, pesticide dealers and companies, etc. Once you've used the metric system a little, you'll also wish that everyone would quickly adopt its marvelous magic.

(William)

B. "Miracle Products" in Florida Vegetable Production

The following article on "miracle products" was written by a well-recognized Extension Agronomist from Missouri for growers in his state. We are reproducing this article for the simple reason that the information presented is also relevant to farmers in Florida. It is reproduced in its entirety with the permission of the author.

MIRACLE PRODUCTS - ARE THEY FOR REAL?

Dr. Gary W. Colliver, Associate Professor
State Extension Agronomy Specialist

Soils & Crops, Comments from Agronomy, Vol. 5
No. 7, Feb 1977, Cooperative Extension Service
University of Missouri, Lincoln University

"Soil activators, soil conditioners, plant stimulators, soil inoculants, 'natural' minerals, liquid liming materials, seaweed, fermented manures, crushed mineral (rock) materials, humic materials, and even coal-like materials are among the 'miracle' products being offered for sale to farmers. Such products have been around for quite some time but seem to be increasing in numbers in recent years.

The promoters of these products often make fantastic claims for their beneficial effects on soils and crop growth. They are sometimes billed as 'cure-alls' which can be good for nearly anything that might ail a soil or plant. They may also be recommended as a livestock feed additive and claims are made for improving the nutritive value of both feed and food crops. I recently read a claim that the use of a seaweed product foliarly on corn this past summer overcame the effects of drought and tripled corn yields.
Promotional material for one product called a soil conditioner and plant stimulator, claims it will "cut the use of fertilizer in half or eliminate it altogether," revitalize worn out soils and eradicate root rot in such agricultural crops as cotton. It further claims to, "release nutrients bound in the soil, reduce caking characteristics in soil and build soil structure, improve root growth, stimulate circulation in the plant, and provide trace minerals to plants." As if that wasn't enough it is further claimed it, "adjust soil pH to a favorable range." In my opinion, any product that could do all of these is truly a miracle!

Sales promotions are usually based largely on testimonials from farmers that supposedly have 'successfully' used the product. There is an absence of scientific research to support the claims. If research is quoted, it is often taken out of context, incomplete, and attributed to someone in a distant state. Creditability is sometimes based on quotes from 'experts' who have no expertise whatsoever in agronomy. Such 'experts' include M.D.'s, veterinarians, lawyers, and even television personalities. Their involvement may be financial backing and are probably well-meaning, but are largely uninformed in the fundamentals of soil chemistry, soil fertility, and plant physiology.

When asked how their products can produce the remarkable results they claim, the promoters often answer, 'We don't know why, but it works.' They may suggest it is due to some 'unknown' natural process or ingredient, or perhaps that the ingredients and how they work must be kept secret to protect their investment. Another approach is to use a conglomeration of scientific terms in a sales pitch, which may sound legitimate to laymen not trained in the sciences necessary to fully understand such terminology.

Promoters are usually very vocal critics of agronomic researchers in universities, the U.S.D.A., and large corporations. They will probably tell you, 'The university doesn't know it works because they haven't tested our product.' Some may also claim universities won't recommend it because they are 'controlled' by the large corporations. Another common characteristic of some promoters is the claim that they want to rid agriculture of its dependence on pesticides and inorganic fertilizers, replacing them with their 'natural, organic' products.

The miracle products are usually used in very small quantities on an acre basis, some as little as 2 ounces per acre. Claims for one product are that 2 to 3 gallons of it will produce the same soil acidity neutralizing benefits as 2 to 3 tons of agricultural limestone. It boggles the mind to visualize such benefits. Skepticism is also cast on the claims that these products variously produce the following benefits: chelation of plant nutrients, improve soil water...
absorptive and holding capacity, increase numbers of earthworms and microbes, increase microbial activity, add beneficial microbes to soil, improve soil organic matter, eliminate crop disease, reduce insect infestation, increase root growth, and improve crop quality.

So-called 'proof' of positive results from farmers' fields can easily be based on erroneous conclusions. For example, if you have two fields and use a product on one field and not the other and the yield turns out higher where you used it, you might conclude the product produced the benefit. Such, however, is not necessarily the case. There are many other factors which may have caused the difference. Unless the comparison is based on sound scientific principles, the results cannot be considered reliable. Further, with the normal variations in any field, any series of field trials not properly designed can show what would appear to be a 'response' in as many as one-half the trials, regardless of what treatment is applied. This gives the promoters their 'ammunition,' and they tend to 'forget' about the trials where no response is shown.

A bad crop year, such as the one we've had in Missouri during 1976, also sets the stage for 'proof' that a product works. For example, let's say a farmer used a 'miracle' product for the first time in 1977, and gets a very high yield, of course much better than in 1976. It's likely he could be convinced that at least part of that big yield increase was due to the product, when in fact it's more likely due to a better season.

There are too many of these products to conclusively test them all by sound research procedures. The limitations on dollars for agronomic research at the agricultural colleges prevent doing everything that might be needed, and there are higher priorities than testing 'miracle' products. Therefore, judgments have to be made based on scientific knowledge and a limited amount of research which has been done on such products. The research which has been done in various states by competent agronomic researchers do not support most of the claims being made for most 'miracle' products. Further the vast amount of scientific expertise available within the ranks of agricultural researchers nationwide, has not found validity in most of the claims for such products. The answer to the question in the title of the article seems to be, no.

Dr. Gary W. Colliver is to be complimented for his excellent article on "miracle products". We, in Florida, concur fully with his analysis of the situation. This article, together with previous materials published on this subject, should serve to caution growers against the use of costly products without adequate data to support their use. Wise and successful vegetable growers learned that it is best to concentrate on the use of proven products and technology instead of reaching for "unproven miracles."

(Montelaro)
C. The Semi-Closed System for Seep Irrigation

In days gone by, water was generally transported in open ditches from the pump and well head to the field. Greater concern for water as a limited resource has forced vegetable growers to adopt methods which reduce water loss due to percolation and evaporation between the pump and production field.

The method of transporting water from the pump to field in underground plastic pipe and then providing for surface irrigation is referred to as a semi-closed system. In the Southwest Florida Water Management District over 4,000 acres of vegetables are now being grown with this water conserving method. In the St. Johns District, approximately 10,000 acres are irrigated with a modified semi-closed system.

A typical system for an eighty-acre tomato field may serve as an example. If a grower wished to irrigate all 80 acres at one time he would have to have a pump and well that would deliver between 7.5 to 10.0 gallons per minute for each acre (600-800 gal. per min.).

It is not uncommon to find wells 2500 feet from the production field. In such cases, the required pipe diameter may be as follows:

- a. First 500 feet from well, 8 inch PVC pipe
- b. Next 700 feet: 6 inch PVC
- c. Next 400: 5 inch PVC
- d. Next 400: 3 inch PVC
- e. The final pipe running across and beneath the head rows is usually 2 1/2 to 3 inch diameter PVC. The large diameter pipes are buried 24-30 inches deep, the smaller lines 18 inches deep.
- f. Between each pair of rows, a 3/4 inch diameter by 18 inches long black polyethylene riser is attached to the 3 inch head line. A control value is inserted into each riser. Thus, water can be controlled for each row or each pair of crop rows.

Water does not have to be placed between each row, but it is generally considered that 25-35 feet is the maximum distance between valves for uniform wetting across the beds.

Growers usually find that 600-800 foot row lengths (with a drop of 1 foot in 800) are easier to manage than the more traditional 1300 foot rows. The trick is to keep just enough water running in between the rows to wet the soil without run-off.
This method is not new. It has been used in other states and on other crops in Florida for almost a decade. It is likely to achieve greater importance now because it appears to reduce run-off approximately 25% and conveyance loss approximately 30%.

Costs vary from $80/130 per acre installation, depending mostly on distance from well to field. Farmers can usually get financial assistance from the ASCS for this very worthwhile conservation practice. One tomato grower using this system told us last week that he now uses 1 well for 130 acres which would only supply water for 50 acres in the old open ditch system.

(Marlowe)

III. VEGETABLE GARDENING

A. Timely Gardening Topics

Four timely topics on vegetable gardening are offered each month to assist Extension Agents in developing periodic (weekly) radio or newspaper shorts.

1. Before Spraying, Consider These Things

Can you identify the pest? The damage might be caused by an entirely different pest than is apparent at first look.

Is it serious enough to use a pesticide or is there another method just as practical? Particularly in home garden situations, some plant injury can be tolerated without needless spraying.

If the pest is present, is it in a vulnerable stage of its life cycle? Many pests are much easier to control when young rather than in an advanced stage.

Be sure you know which pesticide to use on that pest and on that particular host plant. There are pesticides which are general enough to be used on a wide range of plants for a variety of pests. However, never make such a mismatch as using a fungicide to control insects.

Be sure the pest and the host plant both are listed on the label of the pesticide containers. The pesticide should have federal registration for use on the crop and pests involved.

Be sure you know how much pesticide to mix up before spraying, and consider what to do with any excesses if too much is mixed.
Read and heed all label directions and cautions. Store the pesticide well away from children, food and feed, and in such a way that it does not present a danger to anyone.

Pesticides are very valuable and useful tools for Florida gardeners, but need to be selected and used wisely to be of maximum benefit.

2. Second-Hand Garden Sites

Along about now (mid-summer) many Florida gardeners are wondering whether to use the old spring garden location for the fall garden or next year's spring garden again. Certainly, in the event of a new or old site, now is the time to decide so that preliminary site preparations such as soil testing and liming can be made in time to correct any deficiencies.

Where it is possible to choose and use a new spot for your garden, it would be best to rotate, preferably to new ground. Virgin soil does not yet have most of the soil pests usually associated with many garden problems.

New soil may not be available; however, it is still possible to rotate certain crops to new areas within the old garden spot. Try to avoid planting a crop (or related crop) in the same area in consecutive seasons.

If the old garden site must be used again, keep in mind that soil pests probably have increased within that site. Soil fumigation should be considered, particularly if it is a fairly old plot. Nematodes, diseases, insects, and weeds are pests which tend to become more troublesome the longer a plot is in cultivation.

One advantage for keeping an old plot in cultivation is that the soil condition and fertility can be greatly improved by good soil management practices. The addition of organic materials such as compost, animal manures, or green manures is recommended. Soils generally improve with age where these materials are added. This is especially true on some of the deeper scrub oak sands which many Florida gardeners have to use as their garden soil.

3. Drying Vegetables for Storing

For thousands of years, people have dried many foods to preserve them for leaner times. While drying may never become as useful and popular as canning or freezing, it may appeal to some Florida home gardeners.

Drying removes sufficient water from a vegetable to prevent its decay; water content following drying is usually between 5 to 25 percent.

Vegetables can be dried at home in one of three simple ways: in the kitchen oven, in a portable vegetable dehydrator, or in the sun.
Oven drying requires drying trays, an oven thermometer, and a small fan. Dehydrators can be home-made or store-bought. Sun drying in Florida is risky, since low humidity is needed for a period of 3 to 4 days. When our days are hot enough, over 98°F, they are usually too muggy for drying.

Before drying with any of the three methods, blanching is suggested. Dried vegetables which have been blanched will have better color and flavor than unblanched ones. Once blanched, vegetables are placed on trays in the oven or dehydrator. The temperature is maintained at about 140°F for anywhere from 2 hours for cut corn to 20 hours for onion slices, depending on method of drying.


4. To Grow Large Fruits

Although extra large size in vegetables is not particularly desirable for home or market, there is always interest in the biggest pumpkin or biggest watermelon, and growing them is a lot of fun. How to make them big is sometimes a well-kept secret handed down through several generations of record holders. There are plenty of myths such as cutting the tip of the vine and letting it drink milk from a bowl. The main points are selecting a big yielding variety (cultivar), giving the plants a long season and favorable conditions of soil and moisture, spacing the plants widely, and removing all but one fruit per vine.

The question often arises, "is this a record size?" There are no official records kept in Florida of large size vegetables. One suspecting he has grown a world record vegetable might try writing the Guinness Book of World Records.

In the meantime, keep in mind that oversized vegetables are not the best quality for eating. For best table fare, select average size vegetables as a general rule of thumb.

B. Know Your Vegetables - Cucuzzi

Cucuzzi (Lagenaria siceraria) is also known as bottle gourd, calabash, suzza melon, zucca, Italian edible gourd, Tasmania bean, Guinea bean, New Guinea bean, and white flowered gourd. It is grown as a novelty garden item in Florida generally from seed advertised in seed catalogs as Guinea bean.

The plant is vining, musky-scented annual, with hairy, large shallowly lobed leaves on long petioles. Leaves sometimes measure 6 to 12 inches across. Both male and female flowers are white, with the male flower borne on a long slender petiole. Fruits are edible in a young immature stage, usually when about 10 inches long. They are a light green in color, with a very smooth surface. Shape varies, but most are
long and cylindrical, up to 3 feet long and 3 inches in diameter. Some are coiled and twisted, but most are fairly straight and club-shaped. The white pulpy interior has many seeds, which at maturity are 1/2 inch long, white, and uniquely shaped. One end of the seed is pointed, while the other has three lobes.

The plant is a great climber, climbing on most anything within reach. Plant and grow cucuzzi like polebeans, but give lots of room.

(Stephens)