Vegetarian 85-11

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Note:

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The use of trade names in this publication is solely for the purpose of providing information and does not necessarily constitute a recommendation of the product.
I. NOTES OF INTEREST

A. Vegetable Crops Calendar

November 25-27, 1985. County agent in-service training meeting: teaching fertility and fertilizers to farmers. Columbia County Agriculture Center, Lake City, FL. Contact: G. Kidder, Soil Science Department.

December 3-4, 1985. Retail Farm Sales Conferences, sponsored by Florida Cooperative Extension Service, Florida Farm Bureau, and Florida Department of Agriculture and Consumer Services. Choose one of two locations: Dec. 3, Milton, FL (Civic Center) and Dec. 4, Tallahassee Agricultural Center. Contact John Stiles, Division of Marketing, Mayo Bldg., Tallahassee, FL 32301.

December 10, 1985. Eighth annual conference for technical and sales representatives serving the commercial vegetable industry. Contact: Phyllis Gilreath, Manatee County Extension Service.

B. New Publications

1. Florida Cooperative Extension Service Cir. 104, Vegetable Gardening Guide, has been reprinted and county request orders made earlier are now being filled. The guide will be revised for spring use. Contact: Chick Hinton, IFAS publications (392-1764).


   The Glossary, authored by Jim Soule, Professor Emeritus in the Fruit Crops Dept., lists and defines about 6,500 terms common to all phases of horticulture, including 250 illustrations. The current price is $42.50 ($37.50 for ASHS members ordering directly from the Society). Contact: Don Maynard for more information.


5. Vegetable Seed Sources. VCR 85-1 (1985). Don Maynard and Jim Stephens. (Revision of VCR 82-8, by MacDonald and Stephens). Note: one copy is included with this newsletter. For single copies, contact authors.
II. PESTICIDE UPDATE

A. Cucurbitis removed from Sonolan label.

Elanco Products Company has announced its decision to remove cucurbitis (cucumber, watermelon, cantaloupes) from the recommended crops list for Sonolan EC.

In a letter from Elanco, they stated that the decision was a result of a number of reports of crop injury from "inadvertent misuse" of the product by growers using varied cultural practices across the United States. Elanco elected to remove cucurbitis from the Sonolan label, the letter goes on, due to the high value of cucurbitis and the resulting high potential for product liability.

Please remove Sonolan (ethalfluron) from the recommended herbicide list for cucurbitis.

(Stall-Vegetarian 85-11)

III. COMMERCIAL VEGETABLES

A. Herbicides - inadvertent misuse

Precision spraying is required for applications of herbicides. The term herbicide means plant killer. Ideally the crop to which a herbicide is applied will have a wide tolerance to the chemical while the weed plants found in the field will have no tolerance. What more often happens is the crop has a narrow tolerance to the chemical only when applied at a specific stage in its growth.

In the last two months, two companies have removed cucurbit crops from their respective herbicides' label. Cucurbitis have historically had only narrow tolerances, if any, to herbicides. One company has stated that their decision to remove the herbicide label for cucurbit crops was crop injury due to inadvertent misuse (see pesticide update).

A herbicide is labeled to be applied at a specific rate (lbs/A-broadcast), and a specific way (preemergence, preplant, post transplant, directed-shielded, etc). Also are included several other points of information that must be followed for correct application.

An applicator may not intentionally apply a herbicide in a method other than prescribed on the label, but may do so, due to carelessness (legally negligence). This is what is meant by inadvertent misuse.

This brings up the question of what are the major things that cause inadvertent misuse? There are two reasons:

1. Mistakes that change the rate of application,
2. Mistakes in method and time of application.
Rate of Application (gallons per acre)

The rate of application is figured by the nozzle size, the pressure used and the speed of the applicator.

Nozzles. Many mistakes are made with nozzles. Old nozzle tips can wear, giving uneven and higher distribution. What I have seen more times than I wish is different nozzles in the same boom. All may be 80° nozzles but may vary from 8003 to 8004 tips. An 8004 may put out 1/3 more gallons per acre than 8003 at higher pressure. This could mean a 1/3 higher rate of herbicide in a band.

Pressure. When calibrating the sprayer, make sure a constant pressure is maintained. Herbicides should be put out at 20-40 psi. A miscalculation of pressure can cause up to 10 gal/A more being applied.

Speed. Tractor speed across a field is obvious in putting out different amounts. Speed calibrated on a hard surface will probably be lower when going across a loosely compacted field. A 1 mph difference in speed could add 5 GPA to the crop.

If an applicator did not check or calibrate the rig before applications, a missapplication of double is possible. Obviously that much overspray would be seen quite rapidly but 5-10 gals/A on 3 or 4 nozzles could be quite serious and are harder to detect until crop emergence.

A herbicide sprayer should be checked as to nozzles, pressure & speed regularly.

Method and Time of Application

Method and Time. How & where to put out a herbicide are specified on the label. These are usually preplant surface or preplant incorporate (PPI), preemergence (pre), post emergence (PE), or post transplant (POST, PT), or directed sprays.

In many Florida soils, incorporating the herbicide gives it a higher efficacy. It also can be more phytotoxic to the crop when incorporated.

A problem can also arise if a preemergent herbicide is applied too late. Problems have been seen when preemergence herbicides are applied just prior to emergence or at emergence and a rain follows.

A post transplant application instruction does not mean post emergence. Growers should be made aware that any misuse of a chemical, even inadvertent misuse, is jeopardizing the number of materials labeled for vegetables, small as it is.

(Stall - Vegetarian 85-11)
B. Crop Production on Reclaimed Phosphate-mined Soils in Florida

Florida produces nearly 75% of the nation's, and, up to 30% of the world's phosphate. Begun in the late 1800's, Florida phosphate mining occurs mostly in south central Florida (Bone Valley) and to a lesser degree in extreme north Florida. About 90% of Florida phosphate is used in agricultural fertilizers and 5% goes into animal feed supplements. The remainder is used in many products including soft drinks, flame proofing compounds, insecticides, plastics, and cleaning products.

Phosphate rock, deposited from sea water at least 10 million years ago, occurs in strata of variable thicknesses and depths. This strata, or ore, is made up of a mixture of roughly one-third each phosphate rock, sand, and clay.

The mining process begins when large draglines remove up to 50 feet of "overburden", including topsoil, which is placed in piles to be used later in site reclamation. Following removal of overburden, the ore body, or matrix, is removed and placed in a pit where it is liquefied with water and pumped via pipeline to a processing plant where the phosphate rock is extracted.

The ore is washed, centrifuged, crushed, and vibrated in several steps designed to separate phosphate particles from sand and clay. These mechanical processes result in three products: coarse phosphate rock which goes to inventory piles, fine clay suspended in water which is pumped to a holding (settling) area, and "feed" which is a mixture of sand and fine phosphate. Feed material requires further processing in several steps with mild chemical additives. The separated sand is pumped to the mining area to fill the "cuts", and the phosphate is conveyed to inventory piles.

After mining, the disturbed landscape consists of piles of overburden, piles of sand (tailings), and clay settling areas. About two-thirds of mined land consists of clay settling ponds. Since 1975, state law has required that mined lands be reclaimed through a detailed procedure that would return the land to such forms as natural wet-lands, pastures, forests, and other agricultural land useful for crop production.

Crop production uses of unclaimed lands has been minimal except for some citrus grove establishment. Return of reclaimed land to production of high value crops, such as citrus and vegetables, is very important to the overall economy of the counties in the Bone Valley area. Land values, thus taxes, are greatly reduced once phosphate rock has been mined. As the mining is completed in one county, and moves southward, there is a potential negative effect on the county economy.

On October 1, 1985, the Polk County Mined Lands Agricultural Research and Demonstration Project was established. The goal of this project is to determine and demonstrate production practices for high
value agricultural crops. Funding for the ten-year project will be largely provided from the Florida Institute for Phosphate Research, which is a Florida state agency funded from a severance tax on phosphate ore. Other funds will come from Polk County and from "in-kind" support from the University of Florida, Institute for Agricultural Sciences (IFAS). Research and demonstration projects will be conducted largely by IFAS faculty, county personnel, and by private cooperators on several mined sites in Bone Valley.

Since clay settling ponds comprise the largest portion of reclaimed land, the Project will focus on intensive crop production on these lands. This focus will include vegetable, grain, and ornamental crop production.

The phosphatic clay areas present several unique challenges for crop production unlike clay soils in other parts of the U.S. When deposited, these clays are only 5% solids and usually take many years of consolidation before they will support traffic. Even then, the rooting (aerated) zone may only be several inches deep. Below, the clay remains in semi-liquid form. Recently, new techniques have been used to hasten the drying process so that phosphatic clay surfaces will support machines in only a few years from initial draining.

The phosphatic clay "soil" of these ponds is nutrient-rich in almost all plant nutrients except nitrogen. The clay contains high quantities of P, Ca, Mg, and some micronutrients. Potassium is usually in moderate supply. The largest problem confronting the use of these clays for crop production is soil tillage, equipment traffic, and crop stand establishment.

The main objectives of the Project will be to develop, or translate existing technology for crop production on these clay soils. Already, independent research projects are aimed at producing biomass crops, and at modifying the surface of the phosphatic clays with a layer of sand/clay mixture to encourage plant rooting and improve equipment mobility.

The vegetable research at the Project will involve soil modification by incorporation of organic matter from sources including sludge and in-situ-produced biomass. Methods will be studied to modify the soil surface to promote surface drainage allowing rapid surface drying following rain. This effort will involve study of various land forming and bedding practices.

Studies also will be directed at modification of the rooting zone to provide optimum aeration and water drainage. Organic matter and sand/clay mixes will be included in these studies. Methods to aid crop stand establishment, such as anticrustants, will be evaluated on amended and unamended clay surfaces.

In addition to applied production studies, researchers will evaluate the economics of various cropping systems. These studies will help determine crop selection and timing of production that will
fit most appropriately into Florida's overall vegetable cropping seasons.

Florida produces nearly 20% of the nation's fresh vegetables, but available, highly productive soil is becoming scarce. Urbanization is claiming large areas of agricultural land in much of the warmer parts of the state, and oxidation of muck will remove large tracts of land from production in the future. The phosphatic clays represent a potentially useful area for intensive crop production. Returning this land to high value crop production would benefit the population of an area that would otherwise lose economically as phosphate mining is completed. However, large challenges are presented to the use of these lands for crop production. The Mined Lands Project is a cooperative effort among many participants, including the phosphate companies, Polk County, state of Florida, and IFAS. The determination and demonstration of specific production practices is the critical first step to returning these soils to the aesthetic and financial benefit for the affected counties and for the state of Florida.

(Hochmuth, Vegetarian 85-11)

C. Correction - Cucumber variety article (September Vegetarian)

In the article, Cucumber Varieties for Florida, in the September Vegetarian, the developers of two pickle varieties were listed incorrectly. 'Calico' was developed at the North Carolina Agricultural Experiment Station and 'Explorer' was developed at the South Carolina Agricultural Experiment Station and released by Asgrow.

(Maynard - Vegetarian 85-11)
D. Fall quarter vegetable acreage

The USDA Statistical Reporting Service has released estimates of area to be harvested for seven fresh market vegetables in major producing states.

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</table>

1 Includes total for fresh market and processing uses.

2 The actual harvest period begins before and/or extends beyond the quarter in which the crop is shown to be harvested.

(Maynard - Vegetarian 85-11)
IV. VEGETABLE GARDENING

A. Know Your Minor Vegetables - Chicory

**Chicory - Cichorium intybus L.** - Chicory is one of those vegetables which has several common names due to the diverse usage of the edible parts of many forms and varieties. Some of the more frequently used names are succory, Belgian endive, French endive, witloof chicory, and Italian dandelion. Chicory belongs to the same genus as common endive. In fact, the Florida trade often refers to endive as "chicory" as a means of separating curly endive from the broader leaf escarole.

True chicory is a root vegetable whose green leafy tops also are used as cooking greens or in a salad. Roots are ground to make the well known coffee supplement, and they are "forced" to grow the delectable salad vegetable known as french endive.

**Types and varieties** - While there probably are several new varieties, there are three most often encountered: common chicory, Brunswick, and Magdeburg.

**Common chicory** - This form was gathered wild all over Europe for centuries for use in salads. Cultivated types lost their bitterness so that leaves could be eaten raw or cooked. When the roots are forced, a blanched vegetable known as Barbe-de-capucin results which is similar to French endive. The plant resembles a large dandelion plant with long slender pointed leaves deeply notched or toothed. Color is dark green with some red tones. Usually the plant is low growing, but wild forms have been found to grow 6 feet tall.

**Brunswick and Magdeburg** - These are large-rooted varieties which are grown for use as a coffee substitute. The roots are 2 inches thick at the top and 12 inches long. 'Brunswick' has deeply cut leaves like dandelion leaves, while the 'Magdeburg' has erect, undivided leaves. Leaves, somewhat resembling those of mustard and turnips, are about 15 inches long and grown in a whorl from the top of the bulbous roots. Magdeburg is considered to be the most vigorous of the two.

A sub-variety of the Magdeburg is 'Witloof' which has very broad leaves making it suitable for the production of French endive, Belgian endive, or witloof chicory. The edible part is a compact head of blanched leaves closely resembling the inner portion of romaine lettuce.

**Culture** - All the forms of chicory mentioned will grow well in Florida gardens for the production of the leafy tops. Sow seeds September through March, for the tops will withstand frost. If grown just for the leaves without intention of forcing the roots, sow thickly as for mustard, then cut the leaves as needed. Seeds also may be sown indoors and seedlings transplanted to the garden.
Forcing - The idea is to first grow the roots, then dig them up, replant and force to grow a top. Reports indicate roots do not need a rest period, so may be forced at any time they are large enough. Briefly, here is the procedure to follow: Dig and trim to 6-inch lengths roots which are from 1 to 2 inches in diameter. Place upright an inch apart in a box or bed. Cover with moist sand or sandy soil. No fertilizer is needed, as the root will produce leafy sprouts from its own stored food reserves. Keep the forcing bed in a dark warm place. An 8-inch layer of clean white sand is sometimes placed on top of the roots to exclude light as you want the shoots to be clean and well-blanch. Growth increases with heat so try to keep at about 70°F.

Use - Leaves from seeded plant used in salads or as a cooking green. Dried, ground roots are used as a coffee substitute. Forced tops are delectable as a salad.

(Stephens Vegetarian 85-11)

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