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I. NOTES OF INTEREST

A. New Publications


The above listed reports are available from Bradenton AREC, 5007 60th St. E., Bradenton, FL 33508.


The above listed reports are available from Immokalee ARC, Rt. 1, Box 2G, Immokalee, FL 33934.

Cucurbit Variety Evaluation-1983 by G. W. Elmstrom, Research Report LBG83-4 is available from Leesburg ARC, P.O. Box 388, Leesburg, FL 32748.

B. Vegetable Crops Calendar

1. Florida Weed Science Society

The Seventh Annual Meeting of FWSS will be held February 28th and 29th in Gainesville.

2. Southern Weed Science Society

The 37th Annual Meeting of the SWSS will be held January 17, 18, 19, 1984 at the Arlington Hotel, Hot Springs Arkansas. The theme this year for the meetings is: Biotechnology and Weed Science.
3. Weed Science Society of America

Florida is hosting WSSA February 8-10, 1984 at the Hyatt Regency Hotel, Miami.

4. Immokalee Field Day

April 18, 1984 - 1 pm Immokalee ARC.

C. West Mexico Vegetable Industry Tour

Norman F. Oebker, Prof. of Horticulture, Univ. of Arizona is planning a study tour of the vegetable industry of the west coast of Mexico. The date set for the trip is February 26 to March 2, 1984.

Those interested in the tour should contact Norm for more information.

II. COMMERCIAL VEGETABLE PRODUCTION

A. Fertility Management Using Irrigation Systems

"Soil Fertility Management for Tomatoes Using Seep Irrigation and Plastic Mulch" was republished in last months Vegetarian. This month we continue the series with the following article on overhead irrigation by S. J. Locascio. These articles were originally published in VC 83-3, Florida Tomato Institute.

--Stall--

B. Fertilizer Management For Overhead Irrigated Tomatoes

Successful tomato production is closely related to rate and composition of fertilizer, its placement and to water management. Because of the potential value of mulched tomatoes, producers often over fertilize to minimize risk of production loss due to infertility. Although tomatoes are more tolerant to soluble salts than most vegetables, best growth is obtained when tolerant levels of fertilizer salts are used and soil moisture concentration is maintained at or just below field capacity. If the soil in the bed under the mulch is allowed to become dry, salts are concentrated and reductions in growth may occur. This potential injury can be minimized by proper fertilizer management.

With overhead irrigation, water is generally applied at 1 to 1.5 inches per week. Water falling on the tomato plants is funneled into the plant hole and results in salt movement downward and away from the plant. In contrast, with subsurface irrigation, water is applied from below the bed and salts movement is upward and accumulate at the highest point on the bed. Salt injury can be easily minimized with proper fertilizer management with overhead irrigated tomatoes.
Nutrient requirements. Flatwoods soils typically used for tomato production are natively poorly drained, extremely acid (pH 3.5 to 4.0) and must be limed to 6.0 to 6.5 for best tomato production. At low pH levels, Al, Fe and Mn are more soluble and their toxicity reduces tomato plant growth. After liming, risk of toxicity of these elements is reduced. Also, organisms transform organic-nitrogen to ammonium-nitrogen and nitrification from ammonium-nitrogen to nitrate-nitrogen proceed rapidly. The quantity and source of lime depends on soil test results. Dolomitic limestone is applied or Mg is added to the fertilizer where soil Mg is below 10% of the soil's exchangeable cations. With high annual rainfall and low exchange capacity of these soils, soluble nutrients such as N and K do not accumulate from season to season and must be applied for each tomato crop. In some acid soils, applied P can be leached and in others are rapidly fixed to unavailable forms. Fertilizers generally must supply 90 to 95% of the crops N needs and 75% or more of the P, K, and micronutrient requirements. Marl and rock soils have high pH levels in contrast to those of virgin flatwood soils but they are also infertile so that plant deficiencies of all elements except Ca may occur without fertilization.

Rate. Fertilizer rates for tomatoes should be related to length and rate of crop growth. Rates that have provided maximum tomato production are as follows:

For 2 harvests: 160-240-240 lb/acre N-P\textsubscript{2}O\textsubscript{5}/K\textsubscript{2}O

For 3 or 4 harvests: 220-240-330 lb/acre N-P\textsubscript{2}O\textsubscript{5}/K\textsubscript{2}O

On newly planted soils or where micronutrients are known to be deficient, apply about 2.0 lb/acre Mn and Zn, 5.0 lb/acre Fe, and 1.0 lb/acre Cu and B. Micronutrients from several sources including oxides and sulfates have been equally effective and should be applied with the fertilizer.

Tomato production during the cooler period of winter occurs with lower light intensity and shorter days than occur in the spring which results in reduced plant growth rates. Under these conditions, fertilizer rates for N-P-K should be about 80% of those listed above.

Placement. Fertilizer should be placed in the bed in a location to minimize plant injury and to maximize nutrient uptake. With overhead irrigation, nutrient movement will be downward and away from the plant hole in the polyethylene mulch and soluble salt injury will not be as great a problem as with subsurface irrigation. At the lower rates of fertilizer listed above used with 4 to 5 feet bed centers, maximum tomato production has been obtained with 100% broadcast application of the fertilizer or combinations of broadcast and banded fertilizer. With higher fertilizer rates and wider bed spacing, 100% broadcast placement may result in reduced yields due to soluble salt injury and therefore a combination of broadcast and band placement results in best production. For the combination placement, 30 to 40% of the N and K and 100%
of the P, and micronutrients are broadcast and incorporated in the bed. The remaining N and K is applied in a band 6 to 8 inches to the side of the tomato seed or transplant and 2 to 4 inches deep. Location of the band at this depth in the soil is essential for maximum nutrient utilization. The soil should be moist when the mulch is applied as it is difficult to wet soil in the bed after the mulch is applied on a dry soil.

**Nutrient sources:** Tomatoes grown with overhead irrigation can be grown successfully with N from soluble sources including \( \text{NH}_4\text{NO}_3, \text{KNO}_3, \text{Ca(NO}_3\text{)}_2 \) or part of the N from slow released N sources such as sulfur-coated urea (SCU) and isobutylidene diurea (IBDU). A minimum of 25% of the N should be in the NO3-N form. The use of urea and \((\text{NH}_4)_\text{SO}_4\) should be minimized. Potassium can be supplied from KCl, \( \text{K}_2\text{SO}_4 \) or \( \text{KNO}_3 \). In areas where the irrigation water is of medium to low quality, low salt index sources should be used to minimize salt injury from the fertilizer.

### III HOME VEGETABLE GARDENING

#### A. Extending Gardening Information via Videotext

The Florida Cooperative Extension Service, with inputs from the Vegetable Crops Department, helped launch a two-way electronic information and marketing system called videotext. This was the first use of such system in the United States. The new computerized technology has the potential for revolutionizing the way Americans receive information and buy home products.

Videotext is the generic name for the home communications system invented in England in 1976. The system makes available to the television viewer large amounts of graphic and textual information, through the use of a decoder and storage unit connected to a home television set. The viewer simply picks up a control unit similar to a hand held calculator and presses a few buttons. Instantly a menu (list) of general topics such as news, shopping, health, entertainment, and gardening is displayed, from which an item of interest is selected for the latest facts and figures.

The system with which the Florida Extension Service has been associated is called Viewtron, the trademark name belonging to the Viewdata Corporation of America, Inc., a subsidiary of the Knight-Ridder Publishing Co. Viewtron represents a 26 million dollar first-year investment project in the world of videotext for the company that owns The Miami Herald.
The Viewtron system was tested in 1980 in Coral Gables with 204 households receiving the service free. Based on positive reactions from homes using Viewtron, Knight-Ridder began a market test in September of 1983, linking 5000 subscribers in Dade, Broward, and Palm Beach Counties. Normally, the system terminal costs $900, but has been offered in this 1983 test to subscribers for around $500. In addition, Viewtron estimates another $25 to $30 as a monthly service fee (split between Viewtron and the local telephone company.)

IFAS provided Viewtron with information in the areas of nutrition, foods, and home gardening, along with some other topics, for the current pilot project. Home vegetable gardening was one of the topics included.

Much of the gardening information was already written in fact sheets, circulars, and bulletins, but had to be adapted to the videotext format. The vegetable crops specialist worked with a specially assigned journalism professional to develop the vegetable gardening programs. Step-by-step procedures for garden planning, soil preparation, planting, and garden care were outlined with emphasis on South Florida conditions. Also, a 12-month calendar of gardening events was included, along with individual crop information.

As an example of the usefulness of the system to the viewer, the user who wanted to know the variety of tomato seeds to purchase had merely to select from the menu the subject gardening, then the sub-topic tomato. The information on tomato culture including recommended varieties would be retrieved by the computer and presented, possibly even graphically, on the television screen.

An additional component of the IFAS input is the "Ask the Expert" segment. Subscribers call in horticultural questions on their computer systems, the Dade County Extension staff prepares a reply, and these are displayed to all subscribers.

As others have pointed out, most of what videotext has to offer is already more efficiently provided by magazines, newspapers, TV advertising, catalogs, and other publications. Therefore, as the author of "Videotext Journalism" stated, "as long as the services it is intended to replace remain relatively cheap, videotext will be an elite medium and not a mass medium." And that is precisely the criticism most frequently expressed by most extension workers hearing of the concept for the first time—that we are not reaching the masses but a small class of affluent citizens, instead. However, America is heading for new electronic dimensions based on computers. The question is not whether it will happen, but how best to get a piece of the action. As Dean App has said, "they're going to get their information from us or from someone else, so it might as well be us; in-fact, it should be us."

(Stephens-Veg 12-83)
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