Contents

I. NOTES OF INTEREST
   A. The National Agricultural Plastics Association
   B. Vegetable Crops Calendar
   C. New Telephone Listing for Vegetable Crops

II. COMMERCIAL VEGETABLE PRODUCTION
   A. Herbicide Families and Symptoms of Injury
   B. Selecting an Irrigation System for a Vegetable Crop in Florida: Part III, Water and Supply Systems

III. HOME GARDENING
   A. St. John's County Garden Contest
   B. Recent Field Study Results of Interest to Gardeners

NOTE:

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I. NOTES OF INTEREST

A. National Agricultural Plastic Association Meeting

The National Agricultural Plastics Association will meet in Asheville, N.C. on October 2-4, 1984.

The call for papers has gone out with a due date of August 1. The association is interested in any innovative or new use of agricultural plastics or related products. This includes mulches, row covers, drip irrigation, environmental structures and others. If anyone wishes more information on the meeting or wishes to submit a title for a paper, I can supply you with the information.

(Stall-Veg. 84-6)

B. Vegetable Crops Calendar

1. June 18-22 - 4-H Horticultural Institute, Cloverleaf, FL.

2. June 26-28 - Vo-Ag Teachers Horticultural Update Conference, Gainesville, FL.

3. July 24 - State 4-H Horticultural Judging and Demonstration Contest. 4-H Congress.


5. Sept. 6 - Florida Tomato Institute - Marriott's Marco Beach Resort, Marco Island, Fl.

6. October 2-4 - National Agricultural Plastics Association - Grove Park Inn - Asheville, North Carolina

7. Nov. 4-7 - FSHS Meeting - Doral Hotel - Miami Beach, Fl.

C. The Vegetable Crops Department has recently gone through a change of telephone systems and many of the numbers have changed. Listed below are the new phone numbers, with Extension staff noted.

392 - 7922 Dr. Mark Bassett
7914 Dr. Jeffrey Brecht
2136 Dr. Dan Cantliffe
7918 Kathleen Delate - Extension (MG and Youth)
7915 Dr. Dwain Gull - Extension (Postharvest, Dist. I)
4925 Dr. C. B. Hall
7919 Dr. L. C. Hannah
7912 Dr. George Hochmuth-Extension (Commercial, Dist. 2 and 3)
4090 Katie Howald
7923 Dr. D. J. Huber
1539 Dr. T. E. Humphreys
7921 Dr. Stephen R. Kostewicz
II. COMMERCIAL VEGETABLE PRODUCTION

A. Herbicide Families and Symptoms of Injury

Diagnosis of herbicide injury is often difficult and confusing. Symptoms may vary depending on the herbicide, plant species, time or method of application, environment and the stage of growth of the plant. Nutritional problems, physiological disorders, diseases, nematodes and insects may also cause symptoms that are similar to herbicide injury.

A valuable reference is the Herbicide Injury Symptoms and Diagnosis bulletin from North Carolina State University. In many cases, however, there may not be a picture of the injury caused by the particular herbicide you are concerned with.

Many herbicides can be classified into certain families of chemistry which have similar symptoms. Even if you are not familiar with a particular herbicide, you may be able to recognize the symptoms by knowing its family.

The following information is intended to help you classify herbicides by families, give some general types of symptoms, and if used with the Herbicide Injury and Symptom publication may be of help in identifying symptoms of herbicide injury or eliminating certain herbicides as probable cause of injury.

In the next several months the commonly used herbicides in vegetables and other herbicides that may be used in Florida will be listed.

Herbicide Families and Injury Symptoms

Family: Amide

Mode of Action and Symptoms: These herbicides generally interfere with cell division or cell enlargement in the terminal leaves,
leaves, shoots or root meristems; generally termed meristematic inhibitors. Symptoms vary but are usually associated with root growth inhibition, stunted, malformed seedlings. Most amide herbicides are used either preemergence or preplant. This group does not translocate. Control is usually better for grasses than broadleaf weeds. Misapplication of these herbicides to corn can cause leafing out under ground and cause leaves not to unfurl properly. Misapplication in beans (bush or soybeans) causes heart-shaped leaves.

Naptalam has the unusual property of altering the geotropic response of plants, often resulting in roots growing upward out of the soil.

**Herbicides**

<table>
<thead>
<tr>
<th>Common Name:</th>
<th>Trade Name:</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDAA</td>
<td>Randox</td>
</tr>
<tr>
<td>diethatyl-ethyl</td>
<td>Antor</td>
</tr>
<tr>
<td>diphenamid</td>
<td>Dymid; Enide</td>
</tr>
<tr>
<td>mefluidide</td>
<td>Vistar</td>
</tr>
<tr>
<td>napropamide</td>
<td>Devrinol</td>
</tr>
<tr>
<td>naptalam</td>
<td>Alanap</td>
</tr>
<tr>
<td>pronamide</td>
<td>Kerb</td>
</tr>
<tr>
<td>propanil</td>
<td>Stam</td>
</tr>
</tbody>
</table>

**Family: Acetanilides**

**Mode of Action and Symptoms**

Acetanilides are related to Amides in mode of action and symptoms. Both are meristematic inhibitors. Acetanilides, however, translocate in the plant, amides do not.

**Herbicides**

<table>
<thead>
<tr>
<th>Common Name:</th>
<th>Trade Name:</th>
</tr>
</thead>
<tbody>
<tr>
<td>alachlor</td>
<td>Lasso</td>
</tr>
<tr>
<td>butachlor</td>
<td>Macheto</td>
</tr>
<tr>
<td>metalachlor</td>
<td>Dual</td>
</tr>
<tr>
<td>propachlor</td>
<td>Ramrod; Bexton</td>
</tr>
</tbody>
</table>

**Family: Arsenicals**

**Mode of Action and Symptoms:** These herbicides are generally thought to interfere with phosphorous metabolism or by complexing with sulfur containing enzymes. Symptoms are leaf chlorosis followed by necrosis.
Herbicides

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Trade Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>cacodylic acid</td>
<td>Several products</td>
</tr>
<tr>
<td>MAA</td>
<td>Several products</td>
</tr>
<tr>
<td>MSMA</td>
<td>Several products</td>
</tr>
<tr>
<td>DSMA</td>
<td>Several products</td>
</tr>
</tbody>
</table>

(Stall- Veg. 84-6)


Available Capital

As water control capability becomes more sophisticated and as components are added to an irrigation system to reduce the labor required for operation, generally the capital investment costs for an irrigation system increase. Therefore it is important to evaluate available capital and labor during the planning and selecting process of an irrigation system so that possible trade-offs can be determined.

Available Labor and Technical Skill

If labor is either difficult to secure, relatively unskilled, and/or expensive the trend is to select irrigation systems which use lesser amounts of labor. Many irrigation systems with lower labor requirement also require greater maintenance and repair skills. Therefore, when systems with labor saving capabilities are selected the level of technical skill available to maintain and operate such systems must be considered. Due to the present emphasis on improving the efficiency of irrigation water use, the need exists to develop technical skills necessary to apply water efficiently.

The following labor requirements (man hours/acre inch of water pumped) apply to the various irrigation systems used in Florida:

<table>
<thead>
<tr>
<th>Type of System</th>
<th>Man Hours/Acre Inch of Water Pumped</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sprinkler</td>
<td></td>
</tr>
<tr>
<td>Permanent and Solid set</td>
<td>0.04</td>
</tr>
<tr>
<td>Center Pivot</td>
<td>0.05</td>
</tr>
<tr>
<td>Cable-tow</td>
<td>0.25</td>
</tr>
<tr>
<td>Hose-drag</td>
<td>0.10</td>
</tr>
<tr>
<td>Drip</td>
<td>0.15</td>
</tr>
<tr>
<td>Subsurface</td>
<td>0.08</td>
</tr>
</tbody>
</table>
Economic Feasibility

An economic feasibility of an irrigation system requires estimating all of the costs and returns expected from the planned system. When determining irrigation cost and return on investment, a comparison is made of the average annual cost of irrigating to the value of the estimated annual increase in production.

Fixed Costs

Fixed costs for an irrigation system consist of depreciation, insurance, repairs, taxes and interest.

Variable Costs

Variable costs for an irrigation system consist of those costs that vary with output and during the period of crop production. Examples of variable costs are fuel, oil, lubricants, electricity and labor.

Cost Escalation

A sensitivity analysis should be done on inputs the costs of which may escalate faster than other inputs. Two inputs that may have costs that escalate faster than other inputs are labor and fuel. The initial design (size of the pipeline and pumping plant) and system selection may be influenced by the analysis.

Economic Evaluation (Benefit-costs)

Benefit-costs is determined by comparing the estimated annual costs of owning and operating the farm to the projected increase in the returns, or benefits, the irrigation system will create by increasing crop yields and other products sold from the farm.

Financial Feasibility

The goal of the financial feasibility evaluation is to identify the actual year-by-year costs and revenues which can be expected by installing the irrigation system. The annual repayments for loans secured to purchase and install the irrigation system including all annual variable costs expected for operating the enterprise must be determined. The annual costs are then compared with the projected revenue from the enterprise to determine whether cash-flow problems will occur. An irrigation system may be profitable for a farm but it does not mean that the grower can afford it. If the irrigation system is estimated to last 15-20 years, the lending institution may require
that the loan be paid back in 6-10 years. If this is the case, the grower may find himself with an annual payment that is more than the value of the expected increase in yield per year with installing the irrigation system or replacing his old system.

The following initial and operating costs apply to the various irrigation systems used in Florida:

<table>
<thead>
<tr>
<th>Type of System</th>
<th>Initial Cost $/Acre</th>
<th>Operating Cost $/Ac. In.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sprinkler</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permanent and Solid-set</td>
<td>$950-1200</td>
<td>$3.00-3.50</td>
</tr>
<tr>
<td>Center Pivot (80 psi)</td>
<td>$400-450</td>
<td>$3.75-4.50</td>
</tr>
<tr>
<td>Center Pivot (60 psi)</td>
<td>$350-400</td>
<td>$3.00-3.50</td>
</tr>
<tr>
<td>Center Pivot (30 psi)</td>
<td>$300-350</td>
<td>$2.00-2.50</td>
</tr>
<tr>
<td>Cable-tow</td>
<td>$300-350</td>
<td>$6.00-650</td>
</tr>
<tr>
<td>Hose-drag</td>
<td>$400-450</td>
<td>$6.00-6.50</td>
</tr>
<tr>
<td>Drip</td>
<td>$600-800</td>
<td>$2.25-2.50</td>
</tr>
<tr>
<td>Subsurface</td>
<td>$150-200</td>
<td>$1.40-1.75</td>
</tr>
</tbody>
</table>

(Kovach- Veg. 84-6)

III. HOME GARDENING
A. St. John's County Garden Contest

The traditional spring garden contest in the St. Augustine - Hastings area was held May 17 under the direction of County Director Jim Dilbeck. Twenty-eight gardens were subjected to the scrutiny of judges Terry DelValle (Urban Gardening - Jacksonville), Kathleen Delate and Jim Stephens. Gardens were divided into small (less than 1000 square feet), large, and market garden categories and graded on the basis of aesthetics, suitability based on the gardener's resources, production techniques and productivity. Plaques and ribbons were awarded to the top three gardens in each category.

Garden size ranged from 200 square feet to over one acre (for the only garden in the market garden category). Most of the gardens fared
well despite the extended cool weather this year and a period of minimal rainfall. Some excellent crops of tomatoes, cabbage, cucumber and onion were observed, with zucchini and Daikon radish receiving points for the largest specimens. No unusual pest problems were detected in the gardens. Of particular interest were the gardens of the Hartley School 4-H Club, the Center for Living (a facility for mentally retarded adults), and a winning garden located one block from the salt spray of the Atlantic Ocean.

(Delate-Veg. 84-6)

B. Recent Field Study Results of Interest to Gardeners

Researchers at Gainesville have just completed another year of field trials whose results were reported during the Vegetable Crops Department Field Day in May. The following is a summary of some of these and other observations which are applicable to home gardeners in Florida.

1. Beans/weed competition - preliminary studies showed that bean yields were reduced by 15 to 25 percent when one to one ratios of goosegrass to beans were maintained. Weeds are detrimental in several ways, although yield reduction is the bottom-line problem.

2. Planting pre-germinated seeds - Pepper seeds germinated faster and the seedlings grew better with a combination of pregerminated seed, plugmix, water and gel. This method is called the gel-mix seeding technique.

3. Broccoli variety trial - Broccoli seeds were planted Jan. 25, and seedlings transplanted March 1. Out of 31 varieties and lines, 'Packman' was observed to be the earliest. At the first harvest, April 19 (60 days after transplanting) 76% of the mature heads harvested came from 'Packman', 18% from 'Green Beret', 16% from 'Cleopatra', and 10% from 'Kwik-green'. The standard 'Green Duke' variety, also in the trial, was later.

4. Cold Protection in Strawberries - woven polystyrene row covers were tested for frost protection and production of early fruit. On Feb. 15 the row covers were placed over early blooming plants and left on until March 15. Temperatures were below freezing on several nights during this covered period. Temperatures were the same under cover and outside; however, covered plants produced slightly greater at the early harvest times.

5. A southern pea variety trial conducted at Live Oak (North Florida) by W. C. Smith, the County Extension Director, and Shepherd, his technician, in the spring 1983, showed highest yields in the following order: Mississippi Silver, Mississippi Purple, Colossus, California Blackeye, Pinkeye Purplehull, Knucklehull Purplehull, and Sadandy.

6. A mulching trial was conducted at Florida A & M University. Tomatoes, peppers, and southern peas were grown on black, clear, and biodegradable black plastic, plastic plus new paper, and the natural organic oak and pine needles. Of particular note was the failure of
the oak and pine mulch to control weeds due to their lack of thickness. Enough leaves must be maintained to exclude light. Also, the close spacing of the holes for the peas allowed grassy weeds to proliferate around the row centers. The black non-degradable gave best control as expected.

(Stephens-Veg. 84-6)

Prepared by Extension Vegetable Crops Specialists

D. N. Maynard  
Chairman

G. A. Marlowe  
Professor

M. Sherman  
Assistant Professor

J. M. Stephens  
Associate Professor

S. P. Kovach  
Assistant Professor

S. M. Olson  
Assistant Professor

W. M. Stall  
Associate Professor

K. M. Delate  
Visiting Extension Agent I