Vegetarian 87-12

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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.


B. New Publications.


   Hochmuth, G. J. 1987. Diagnosing nutritional disorders and salt damage. VEC 87-06.


   Colvin, D. L. and W. M. Stall. Weeds in the sunshine WIS-102, 17 pp. Copies may be secured from the authors.

II. PESTICIDE UPDATE

A. Fusilade 2000 Labelled on Dry Bulb Onions or Garlic.

   Fluazifop-p (Fusilade 2000) has been granted labelled use for control of actively growing grass weeds in dry bulb onions or garlic.

   A total of 96 oz product (.75 lb a.i.) may be applied to the crop per season. Rates for the control of actively growing grass species at specific growth stages are specified on the label. Depending on species, the leaf stage ranges from 3 to 8. The rates, in most cases, do not exceed 24 oz product per acre (.188 lb a.i.).

   Only oil concentrates and non-ionic surfactants cleared for use on growing crops may be used in the spray mixture. A pre-harvest interval of 45 days must be maintained. All applicable directions, restrictions, and precautions on the EPA-registered label are to be followed.

   The label or supplemental label for the use of Fusilade 2000 must be in the possession of the user at the time of application.

   (Stall: Vegetarian 87-12)
III. COMMERCIAL VEGETABLES

A. Improving Food Safety.

In Vegetarian 87-1 there is a report "How safe is your food supply" that indicates the illegal residue rate in imported foods is twice the rate for domestic foods. Legislation has now been introduced (bill HR-3504) that would toughen federal pesticide inspection of food imports. The bill is sponsored by Rep. Leon Panetta, D.-Calif., and Rep. John Dingel, D.-Michigan. "This legislation is designed to give American consumers adequate protection from dangerous pesticides and to ensure that U.S. and foreign farmers compete on a level playing field."

Key provisions of the bill include:

* a requirement that raw agricultural imports be accompanied by a document identifying pesticides used on the commodity during production;
* a requirement that the Food and Drug Administration establish a computerized data management system to track and evaluate the results of its monitoring program and provide annual reports on the information it collects;
* instructions to the FDA to begin compiling information about the pesticide programs of foreign countries;
* directing FDA to make sure the pesticide monitoring results submitted by private labs are accurate; and
* a requirement that the FDA begin research and development of new pesticide tests.

Panetta, who is chairman of the House Agriculture Subcommittee on Domestic marketing, Consumer Relations and Nutrition, said, "The current enforcement system is so weak that not only does tainted food from abroad frequently reach American consumers, but importers who violate the law, even when caught red-handed, are rarely penalized."

Dingel, who is chairman of the House Committee on Energy and Commerce, pointed out that "over the past decade, various reports have found serious deficiencies in the federal government's program for monitoring pesticide residues in the food supply."

After touring a U.S. import inspection facility, Panetta found the FDA rarely communicates with foreign governments to determine what pesticides are used on agricultural products imported into the United States or to gain foreign cooperation in curbing pesticide violations. He cited a number of government deficiencies in the monitoring of pesticides on imported foods:

* less than 1 percent of the nearly one-million, annual shipments of imported food are sampled for pesticide residues.
* FDA labs cannot test for a large number of pesticides.
* even after violating residues are found in imported produce or other foods, the food often reaches consumers because of the delay in getting tests results.
* importers who fail to recall contaminated produce seldom are penalized.
* the FDA doesn't know what pesticides are being used in foreign countries.

This bill, HR-3504, has been referred to the House Energy and Commerce Committee for action. Passage would benefit Florida growers and all consumers.

(Gull: Vegetarian, 87-12)

B. 1987 Okra Variety Trial Results.

Okra, Abelmoschus esculentus, is grown commercially throughout Florida mostly in small acreages for local use. However, significant plantings occur in Dade and Hillsborough Counties that are utilized for shipping. Statewide there are an estimated
2,400 acres with a value exceeding $2 million.

Previous okra cultural research in Florida has demonstrated that high yields are associated with high fertilizer rates, high plant populations, and use of the full-bed, polyethylene mulch cultural system. Evaluations of four standard varieties in 1974 and 1975 showed no significant yield differences among them. A variety evaluation conducted in 1986 at the Gulf Coast Research and Education Center indicated that some recently introduced varieties and hybrids produced higher yields than older varieties (See Vegetarian 86-10).

The purpose of this trial was to provide additional information of varieties, hybrids, and experimental lines that performed well in 1986, and to evaluate some additional lines.

Days from seeding to first harvest ranged from 52 to 55. Varieties included in the 1986 trial ranged from 54 to 64 days from seeding to first harvest. The association between early bearing and high total yield noted in 1986 was evident although not as pronounced as previously.

The production system used in these trials resulted in very vigorous plants that grew extremely tall; much taller than the descriptive material provided by the seed companies would suggest. Plant height varied from 7.6 to 10.1 feet in the varieties included in this trial. The experiment was terminated because of the difficulty of harvest although the plants were in good condition and were still productive. In 1986, plant height ranged from 7.2 to 9.9 feet.

In-row spacing was 3 inches which is less than the 4 to 10 inches currently recommended in Florida, but greater than the 1-inch in-row spacing found to be optimum at the Dover Agricultural Research & Education Center. Plant height was depressed rather than enhanced in dense plantings in those experiments. Fertilizer rates were less than those used at Dover, but somewhat higher than rates suggested for unmulched okra. A possible explanation for the very vigorous growth obtained is the method of irrigation. Seep irrigation used in this trial provided uniform moisture throughout the growth period whereas the overhead irrigation used at Dover may have resulted in some plant stress during wet-dry cycles.

A complete stand at 3 inch in-row spacing was not obtained because of poor germination even though overseeding had been used. However, stand counts indicated that only "Prelude" had a significantly reduced stand from 'NVH 2601', the line with the highest plant stand percentage.

Length:diameter ratios obtained at mid-length from 2, 3, 4, and 5 in long pods provide an indication of pod conformation. Accordingly, 'Emerald' and 'Parson's Special' produced the thinnest pods in relation to length whereas 'Clemson Spineless' pods were thickest in relation to length.

Highest early yields were produced by 'NVH 2601', 'NVH 2600', 'Prelude', and 'Annie Oakley' (Peto-seed). On the other hand, lowest early yields were produced by 'Parson's Special', 'Emerald', and 'PSR 1585'. Over half of the varieties produced total yields in the highest grouping: 'NVH 2600', 'NVH 2601', 'Clemson Spineless 80', 'UGA Red', 'Prelude', and 'Annie Oakley' (Peto-seed). Lowest total yields were produced by 'Parson's Special', 'Emerald', and 'PSR 1585'. 'UGA Red' is not suitable for commercial okra production except as a specialty vegetable.

Generally, those varieties that had highest yields in 1987 also had high yields in 1986. Also, the strong association between high early yields
and high total yields noted in the previous trial continued in this trial.

Yields in this trial were very high, ranging from 433 bu/acre for the lowest yielding variety to 970 bu/acre for the highest yielding variety based on 9680 lbf/acre. These plot yields are much higher than the estimated state average yield of 113 bu/acre. Higher plot than commercial okra yields are to be expected because fresh market okra is rarely harvested to its potential because of market constraints. High plot yields have previously been reported in Florida; 'Clemson Spineless' produced 620 bu/acre in 1974 tests at Dover and 877 bu/acre were obtained from 'Annie Oakley' in the 1986 trials at Bradenton.

See Bradenton GCREC Res. Rept. BRA1987-19 for a complete report of the trials.

(Maynard: Vegetarian 87-12)

C. Portable pH meter problems.

pH Meter Information. Many of us justly consider pH as a basic test that is very helpful in predicting the underlying chemistry of a soil or water system. For some people a quick pH determination in the field is worth the extra effort of acquiring a portable pH meter, even though the Extension Soil Testing Laboratory offers a pH test for a modest $1.00/sample. In reality, there are two types of people that own portable pH meters: those who have had trouble, and those that will have trouble with these little scientific wonders.

The technology is certainly available to make good pH meters, so WHY am I having so much trouble?! The answer to that question is as complex as the pH electrode and the meter's circuitry. It is only the test that makes pH measurements look easy.

For troubleshooting portable pH meters, you should consider three main problem areas: the electrode assembly, the connection of the electrode to the meter, and the meter itself.

The Electrode. Most of your pH headaches can be traced to a problem with the pH electrode. The electrode is really a combination of a pH sensing electrode and a reference electrode. The sensing portion is the thin glass ball or globe at the very tip. This glass membrane is very fragile and is usually protected by a plastic extrusion. If the glass is broken, discard the electrode. Ensure that they are between the plastic protection and the glass membrane is clean and free of salts and other foreign material by rinsing with plenty of clean water.

The reference portion of a combination electrode is usually indicated by a small ceramic plug. The plug can be located in several places but is usually on the outside of the barrel within a quarter inch of the glass membrane. This plug should be free of salts and white in color. If the plug is missing or damaged badly (rough handling), discard the electrode. The plug actually leaks very slowly to make good electrical contact with the tested solution. When taking a pH reading, both the glass ball and the plug MUST be in contact with the solution. If only the glass ball is in contact with the solution, you will still get a reading from the instrument. The reading, however, will not be the pH of your sample.

If you find that the barrel and attached wiring are free from defects and the glass ball and plug are serviceable, you may still experience problems due to failure of one or more of the internal parts. I recommend that you soak the electrode overnight prior to use in the field. Many electrodes fail because of disuse and dehydration.

Some electrodes come equipped with a plastic boot that will fit over the business end of the electrode for protection and to keep the
glass ball and ceramic plug moist. Use this boot only while transporting your meter to and from field. I have found that prolonged storage with the boot in place results in dehydration of the electrode. I recommend that while the electrode is not being used, you place the electrode in either a buffer solution, say the pH 7.0 buffer solution, or in a potassium chloride solution. If you choose to use the buffer solution, discard this solution before trying to calibrate the pH meter. Always use fresh buffer solutions for calibration purposes.

If the electrode goes long periods of time between uses, you may have to replenish the solution. Don't be alarmed by the white salts which will form on the electrode and storage beaker, if you are using potassium chloride solution. Just add distilled water and the crystals will redissolve.

The electrode connection. There are many different types of electrical connections used to fasten the electrode wire(s) to the meter. All are plagued with the usual electrical shortcomings: corrosion, wear resulting in a poor fit, and physical abuse in the field. Inspect and clean the fitting, often. Problems with this connection may be diagnosed by placing the electrode in a standard solution and gently wiggling the connection. A poor connection will result in wildly changing pH readings. Try another electrode. If the problem still exists, the meter will need servicing.

The meter. About the only meter trouble that is user-repairable is replacement of the batteries. Always use new batteries and carry a spare set when going to the field.

The pH meter is designed to measure voltage changes from the combination electrode that are measured in millivolts, a very weak signal. Treat the meter kindly? To get a feeling for the millivolt scale, consider the tension headache you get when your pH measurements don't make sense. The headache is really pain from the muscles at the base of your skull being 'tensioned' with about 3 to 7 millivolts. Not much power both on what an effect - just like your pH reading!

A reasonably accurate and very low cost alternative to the portable pH meter is found in indicator paper. While this method is not as technically sophisticated as a properly operating pH meter, its cost and worry-free operation make indicator paper a possible alternative. The Extension Soil Testing Laboratory offers indicator paper to County and State Extension faculty at a cost of $3.00. This paper will respond over a pH range from 1 to 12. With some practice, pH can be estimated to within a 0.5 pH unit.

You must keep the paper from prolonged direct sunlight, high temperatures, or moisture for proper pH indications. Two small rolls are included in a plastic dispenser which also contains the printed color bars and corresponding pH values.

Remember that a portable pH meter can be very helpful to diagnose or indicate potential problems in the field. Such meters are NOT laboratory grade instruments. Use the field instrument to pick up the presence of a potential problem, but make your management decisions from reputable laboratory analyses.

(Ed Hanlon, Ext. Soil Management Specialist: Vegetarian 87-12)

D. Muskmelon Cultural Studies at Live Oak.

Muskmelon (cantaloupe) production in Florida amounts to about 1,300 acres with an average yield of 140 cwt per acre. Most of the crop is produced in southern Florida using plastic mulch. The main reasons for limited muskmelon production in Florida have been the lack of suitable cultivars or chemicals for foliar
Disease control. Recent improvements in these two areas has led to renewed interest in muskmelon production in Florida.

Muskmelons could potentially become a profitable crop for North Florida. The soils, climate, and proximity to market centers are factors in favor of muskmelon production in North Florida.

We conducted a demonstration study at the Live Oak experiment station during the spring of 1987 to evaluate methods for early production of muskmelon. In the test, we compared mulching with polyethylene to bare-soil production. In addition, transplanting was compared to several techniques of direct-seeding. The seeding methods were: 1) raw seed with plug-mix, 2) raw seed covered with soil, 3) primed seed with plug-mix, and 4) primed seed covered with soil. Priming was conducted by soaking seed for 4 days in an aerated solution of 2% potassium nitrate.

Muskmelons were planted in raised beds on 5-foot centers. Fertilizer was applied according to IFAS standardized recommendations at rate of 1,000 lb/A of a 13-4-13 (N-P₂O₅-K₂O) analysis. All plots were irrigated with a drip irrigation system using a twin-wall, 10 mil. tape (Chapin Watermatics) with emitter spacing of 12 inches and a flow rate of 0.5 gal. per 100 feet of bed at 10 psi pressure.

Mulching with polyethylene more than doubled the early yields (First 2 harvests) over no mulch (1960 lb/A compared to 760 lb/A). The increase was due to an increase in the amount of No. 1 grade fruits in the mulched plots. Mulching did not affect the total yields (28,150 lb/A for the mulched plots compared to 21,550 for the unmulched plots).

Transplanting increased the early production of fruits over direct-seeding by enhancing the production of No. 1 grade fruit. There were no differences among the direct-seeding methods for early yield.

Total yield was the same for all planting techniques.

This study showed that early muskmelon production in North Florida can be enhanced by use of polyethylene mulch and transplants. The combination would be favored by economic considerations because extra trips across the field for fertilizer sidedressing and for weeding would be needed in the unmulched system. Information for this article was summarized from Vegetable Crops Research Report 87-08.

(Hochmuth: Vegetarian 87-12)

IV. VEGETABLE GARDENING AND YOUTH ACTIVITIES.

A. Florida 4-H Horticulture Delegation Winners at Indianapolis.

Each year Florida is represented at the National Junior Horticultural Association (NJHA) convention by a delegation of State 4-H contest winners in Horticulture. A different city hosts the event annually. This year the convention was held at the Radisson Plaza Hotel in Indianapolis, Indiana, October 30 through November 2, 1987.

The Florida delegation, led by State NJHA Chairman Bob Renner (Marion County 4-H Agent), and David Dinkins (Leon County 4-H Agent), consisted of the state-winning 4-H Horticulture Judging and Identification team from Leon County; the State 4-H Plant Science Demonstration team from Marion County; Dick Wooton, District Extension Director, who set up the ID contest; Nancy Davis, Leon County Master Gardener who coached the ID team; 4-H observer Elaine Davis; and two other participants in 4-H competition.

Here is a summary of how our 4-H'ers fared in the competitive events. The highest honor went to Joe Judge, Leon County, who had the top score in the Nation in the Horticulture I.D. and Judging event.
Teammates Ann Eberly was sixth, and Jimmy Daniels placed 10th overall. This threesome on the Leon County team coached by Nancy Davis, Leon County Master Gardener, placed second nationally. Only five points separate them from the winning team from the state of Maryland.

The Horticulture Demonstration team from Marion County, composed of Karen Daughtery and Karen Brown, was a National Winner in the Production Division with their demonstration on "Growing Ferns". Their coach was Bob Renner.

In other contests, 4-H'er Sister Anna (Marion County) won a Worthy Award for her single-color photo in the Hort-Photo event, and Ben Yawn (Marion County) was a National winner in the 12-14 year old category of the Young America Awards - Plant Propagation. All of these 4-H achievers are to be congratulated for their outstanding performance in these national events, and we should thank the organizations who sponsor our 4-H'ers in Horticultural activities: Florida Fruit and Vegetable Association, Florida Department of Agriculture and Consumer Services, and the Florida 4-H Foundation.

(Stephens: Vegetarian 87-12)

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