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I NOTES OF INTEREST

A. Vegetable Crops Calendar.


II COMMERCIAL VEGETABLES

A. Strawberry Cultivars for Central Florida.

Sweet Charlie was planted on 38% of the west central Florida strawberry acreage during the 1996-97 season, overtaking 'Oso Grande' as the state's most planted cultivar. Growers made the switch primarily because of the earlier fruiting pattern of 'Sweet Charlie'. 'Sweet Charlie' produces the majority of its fruit volume before the end February — whereas 'Oso' produces over half of its fruit in March and April. The key for the Florida industry, we believe, is for the industry to produce the bulk of its fruit before southern California starts harvesting large volumes of fruit in March. The biggest problem that we have seen with 'Sweet Charlie' in our trials is Botrytis fruit rot. Fortunately, there appears to be some promising new control measures for this problem on the horizon.

Camarosa was planted on greater than 20% of the west central Florida acreage during the 1996-97 season. This cultivar, from the University of California (UC), was only released a few years ago, but it has quickly become the dominant cultivar in California, replacing nearly all of the 'Chandler' acreage in that state. It has also replaced 'Oso' as the main strawberry cultivar in Spain. 'Camarosa' has a more even fruiting pattern, and produces a firmer berry, than either 'Chandler' or 'Oso'. West central Florida growers, in general, were pleased with the quality and performance of 'Camarosa' during the 1996-97 season, and this cultivar appears to be on its way to replacing 'Oso' as the cultivar that our industry depends on for large, high quality late season fruit. In our trials at the Dover Center last season, the quality of 'Camarosa' fruit was good, but its early yield (Dec. - Feb.) was only slightly better than 'Oso'. Like 'Oso', 'Camarosa' produces over half of its fruit in March and April. And since 'Camarosa' produces many of its fruit late in the season, when the weather is typically warm, anthracnose fruit rot can be a serious problem on this cultivar. 'Camarosa' also appears to be moderately to highly susceptible to powdery mildew.

Oso Grande is losing favor in this area because of its low yields early in the season, and because of the fact that its fruit don't always ripen uniformly. But in its defense, it generally has a lower percentage of small and misshapen fruit than the other cultivars, and it produces a bush that is easy to harvest.

Selva continues to hang on in the central Florida industry, mainly because it produces the earliest fruit of the season. We believe the reasons for growing this cultivar, however, are fading. 'Sweet Charlie' usually catches up and passes 'Selva' in fruit production by the end of December, and 'Sweet Charlie' and the other new cultivars are generally better flavored and less susceptible than 'Selva' to pest and diseases.

Carlsbad and Cuesta are relatively new cultivars from the University of California and both are being grown in west central Florida to a small extent. Like 'Camarosa' and 'Oso', 'Carlsbad' and 'Cuesta' produce the lion's share of their fruit in March and April. 'Carlsbad', in our trials however, has produced higher February yields than the other UC cultivars.

Rosa Linda, a new cultivar from the UF/IFAS program got off to a rough start in its inaugural season (1996-97). Many of the fruit from this cultivar, especially early in the season, had green tips. Then the hard freeze of January 19th caused a high amount of flower damage on this cultivar (compared to other cultivars) resulting in a lot of misshapen fruit. Despite these difficulties, however, 'Rosa Linda' produced the highest total marketable fruit yield (Dec. - March) among the cultivars tested at our center last season. 'Rosa Linda' is susceptible to anthracnose fruit rot, but is less susceptible to Botrytis rot than 'Sweet
Charlie', and also appears to have some resistance to powdery mildew, mites, and angular leaf spot.

We suggest that you base cultivar choices on your production records and experience over the last several years—not just on one year's results. The weather in west Central Florida during the 1996-97 season was warmer and drier than is typical. Weather data for the season (October-March) compared to a 61-year average (1929-1989) are presented in Table 2. The average monthly temperature for October, November, December, and January was close to the 61-year average, but the average monthly temperature for February and March was significantly higher (+6°F) than the 61-year average. Rainfall was significantly lower than the 61-year average for January (-1.42 inches), February (-2.41 inches), and March (2.04 inches).

Each cultivar has its strengths and weaknesses, and therefore it is generally desirable to use a combination of cultivars. If you are interested in growing a new cultivar, consider evaluating it on limited acreage for several years. In this way you can determine, with minimal risk, how the cultivar performs under your particular growing and marketing conditions.

| Table 1. Marketable yield in flats per acre at GCREC-Dover during the 1996-97 season. |
|---------------------------------|-----------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|
|                                  | December | January | February | March | Total |
| Cumarosa (O)                    | 80       | 396     | 363      | 1079  | 1918  |
| Carlsbad (Q)                    | 73       | 301     | 623      | 977   | 1974  |
| Oso (O)                         | 42       | 420     | 350      | 1097  | 1909  |
| Rosa Linda (NS)                 | 190      | 380     | 1441     | 526   | 2537  |
| S. Charlie (MA)                 | 215      | 250     | 1074     | 323   | 1862  |

*one flat = 12 pints.*

*Plants were set on October 22 and spaced 1 1/2 inches apart within rows. The yields in this table are extrapolations made from single-bed plots of approximately 200 plants per cultivar. These figures are best used to make comparisons between cultivars, and are not necessarily accurate estimates of commercial yields. Marketable fruit yields in March were reduced significantly due to a heavy infestation of thrips.*

*Q, Q, NS, and MA refer to plants from an Ontario, Quebec, Nova Scotia, or Massachusetts nursery respectively.*

<table>
<thead>
<tr>
<th>Table 2. Average temperature and rainfall at GCREC-Dover.</th>
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<tr>
<td>October</td>
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<td>February</td>
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<td>March</td>
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Below is a table summarizing thoughts on the top UF clones in the 1997-98 variety trial.

<table>
<thead>
<tr>
<th>Clone</th>
<th>Strengths</th>
<th>Weaknesses</th>
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<tbody>
<tr>
<td>Sweet Charlie</td>
<td>High Dec. and Feb. yield; resistant to Botrytis fruit rot, highly susceptible to Anthracnose fruit rot</td>
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<tr>
<td>Rosa Linda</td>
<td>High yielding, especially in February and March, too many small fruit</td>
<td></td>
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<tr>
<td>FL 93-100</td>
<td>High Dec.-Feb. yield; avg. fruit size as great as Camarosa, susceptible to water damage; primary fruit often have odd shapes</td>
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<tr>
<td>FL 95-41</td>
<td>High total yields; firm, deep red, attractive fruit, susceptible to Colletotrichum crown rot</td>
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</tr>
<tr>
<td>FL 95-256</td>
<td>High Dec. yields; firm, deep red, attractive fruit, small average fruit size</td>
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</tbody>
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B. **What Do We Do With All That Mulch?**

Polyethylene mulch has become an important production tool for vegetables, so much so in many parts of the country that we now have a disposal problem. What do we do with all the used mulch? Many growers’ first experience with mulch disposal was to disk it up. It will just go away, won’t it? That did not happen and the pieces of film reappeared each season in tangles in the planter and cultivator. Mulch film manufacturers incorporate certain chemicals in the film so the film will not breakdown prematurely in the field. This mulch stability makes it possible for growers in areas in the country with two production seasons, to use the same mulch for two successive crops.

Since the plastic mulch does not rot or degrade rapidly, it can pile up around the farm or in a landfill. Some growers have burned the mulch on the farm, but this practice is not allowed in all vegetable producing counties in the country and will not be a desirable disposal method in the future. What options for disposal will we have, especially since more growers are using mulch each year?

Land filling is probably still the most popular method for mulch disposal in many areas of the country. Tipping fees make this an expensive disposal option. The disposed film often has considerable soil and moisture which increases the weight making land filling even more expensive. Loose film makes for much labor and costs for transporting to the landfill. New developments have been made in mechanical mulch removal and baling so that the used film bulk is greatly reduced. Baling should be encouraged in those vegetable producing areas that have a lot of mulch to be disposed. Baled mulch takes less space in the landfill or stacks neater and more compact in a disposal area on the farm. Baling machines are now available commercially and could be purchased by a group of growers or a farm supply center for use in a commercial vegetable area. Machines are fast, easy to use, and economical.

Recycling of mulch film is on the horizon. Actually, the technology to recycle the film is here today but the economics of mulch film recycling is not very favorable yet. Mulch film is usually dirty and wet, and sometimes covered with some pesticide residues. This contamination means the film must be cleaned before recycling which increases the cost. Greenhouse covers, row tunnel film, and other clean films are currently being recycled into plastic lumber among other things.
Recycling of mulch film will inevitably become a reality once the economics become favorable. When recycling comes, the mulch film will need to be baled for ease of handling on the farm and for transportation. Baling also will be required by the recycling company which is remanufacturing the film into another product. If recycling becomes economic, then baled mulch can easily be retrieved from “storage”.

Incineration is another option for mulch disposal but most agricultural mulch is dirty or has crop protection chemicals on the surface. There is considerable BTU content of polyethylene, so there is interest in the energy conversion potential. However, burning of polyethylene presents some challenges in most of today’s waste incinerators, because it generates too much heat for the incinerator equipment. In addition, low temperature burn or incomplete combustion can generate pollutants. It is probable that burning of uncleaned mulch film will not be acceptable in many areas.

As mulch film use increases and environmental awareness grows, disposal of mulch film will be something to deal with. Before the local government, especially in areas of heavy mulch use, makes regulations on mulch disposal, the agricultural industry should decide on a mulch disposal program. It seems that this program should at least consist of some sort of coordinated baling effort. Ideally, disposal of bales should be done in a fashion at a landfill or on the farm so they can be retrieved for recycling. Disposal of mulch film is, and will be, an important issue for vegetable producers to deal with. To this end, the American Society for Plastics (ASP) will become more active in communicating ideas for mulch disposal among the mulch producers, users, waste disposal industry, agricultural mulch disposal equipment companies, and governmental agencies. If interested, you can call me or reach the ASP at 526 Brittany Drive, State College, PA 16803, phone (814) 238-7045, or fax (814) 238-7051.

(Hochmuth, Vegetarian 98-04)

C. Phosphorus-Reduction BMPs in the EAA.

The 1994 Everglades Forever Act requires a 25% reduction in annual P runoff from the Everglades Agricultural Area (EAA). This basin-level regulatory target must be met by growers through BMP strategies designed to reduce P discharge from their properties. In late-1992, 10 EAA farm sites were instrumented to continuously monitor off-farm drainage volumes and discharge P concentrations/loads. This Everglades REC study was designed to develop and test P-reduction BMP strategies for sugarcane, vegetable, and mixed-cropping operations.

Unlike sugarcane (a fairly water tolerant, long-term crop), vegetable production typically requires frequent field drainage events to maintain optimal water table levels and to accommodate multiple field preparation, planting, and harvesting activities during successive cropping schedules. Vegetable growers thus face unique challenges in their BMP efforts to reduce off-farm drainage P levels. Reducing fertilizer P inputs to reduce drainage P levels is a logical BMP strategy but documenting this effect is problematic since most growers had already changed from broadcast to banded (at reduced rates) applications prior to farm-level water quality monitoring. Fertilizer inputs have been reduced at a mixed-crop study site by choice of crop rotations. For example, planting vegetables following rice and radishes following leaf (vs. following sugarcane), capitalizes on elevated soil nutrient levels created by the preceding rice and leaf cropping systems.

Water management BMPs that reduce the frequency/duration of main farm pump operations will reduce discharge P loading. Prior to BMPs, a 1280-acre vegetable site would completely discharge summer fallow flood waters in preparation for planting. Under BMPs, the grower now routes water internally between fields while planting progresses in selectively drained fields. Off-farm P loads have been reduced by allowing fallow flood waters to subside naturally through ET and percolation, a practice that also encourages in-field retention of high-P particulate matter.
Installation of water control structures at a 1750-acre mixed-crop site allowed the grower to "hydraulically isolate" crops with different water requirements within contiguous field blocks. Appropriate water levels for sugarcane, vegetable, rice, and sod blocks can now be selectively controlled with internal portable pumps which has reduced off-farm drainage requirements. Installation of several "booster" pumps internal to a 2500-acre sugarcane/vegetable rotation site allows efficient de-watering for vegetables located at the back of the farm, thus reducing main farm pump operations. These BMP strategies are particular useful for cropping systems that include sugarcane and other crops (vegetables, rice, and/or sod). Hydraulic isolation of different crop commodities and use of internal portable and booster pumps allows the preferentially discharge of lower-nutrient water off farm, re-direction of higher-nutrient drainage (vegetable or rice) into sugarcane fields, routing localized drainage events around the farm to maximize ET losses, and retention of low-volume rainfall events.

Land-use decisions near the farm discharge structures can impact water quality trends. Off-farm drainage events increased at a mixed-crop site when fields adjacent to the main farm pump were planted to vegetables and then flooded rice. Subsequent rotation back into sugarcane led to appreciably reduced water management logistics and declining P loads. These trends were not observed when rotations placed vegetable/rice blocks in the middle/back of the farm. This geographic arrangement places the entire farm water conveyance network at the grower's disposal, allowing the complete implementation of the P-reduction BMP program.

Under these BMP strategies, 8 of 10 project farms have achieved P load reductions exceeding the 25% regulatory requirement for the basin. Lack of reductions at specific farm sites are associated with specific crop rotation and/or water management decisions, and are deemed correctable with appropriate BMP implementation. Future research trends will focus on enhancing BMP efficacies through improved particulate control and on-farm water/nutrient use efficiencies.

(Ron Rice, Vegetarian 98-04)

**D. Bean Field Day in Homestead**

A Bean Field Day was held in Homestead on Thursday, March 12, 1998. Two trials were featured. The first was at one of the grower demonstration sites for the South Florida Water Management District funded project: Irrigation and Fertilization Optimization Project to extend Best Management Practices to Fruit and Vegetable Growers in the South Dade Basin. It featured both aspects of this demonstration: (a) the use of an EnviroSCAN™ and tensiometers to measure soil moisture, and (b) a fertilizer rate demonstration using 2 rates of nitrogen and 2 rates of phosphorus. The 4 resultant combinations were: (1) 80-32-96, (2) 120-32-96, (3) 80-0-96, and (4) 120-0-96. Beans were planted on 21 Jan 98; the first fertilizer application was on 20 Feb 98, with the second on 20 Feb 98. All phosphorus and one-third each of nitrogen and potassium was applied at the first date, with the remaining two-thirds at the second date.

Project cooperators include: Pts Steve O'Hair and Bruce Schaffer; Project Manager, Roberto Nuñez-Elisea; Project biologists, Juan Carranza and Miamiam Martinez; and Research collaborators: Herb Bryan, Jonathan Crane, Ed Hanlon, George Hochmuth, Mary Lamberts, and Teresa Olczyk. The grower cooperator is Bobby Helms of B&D Farms.

The second stop was at one of Teresa Olczyk's bean variety trials. This trial was planted on 15 Jan 1998 with 16 cultivars and advanced breeding lines from Asgrow, Novartis (Rogers), Ferry Morse, and Vilmorin. The beans experienced bad weather from the start, with heavy rains and strong winds. The grower cooperator is Sam Accursio, Jr. of Accursio Farms.

The purpose of the field demonstrations with bean varieties and breeding lines is to provide growers with independent, objective information on the performance of different varieties in the winter and early spring in the Homestead area.
South Florida's unique soils and climatic conditions, and extreme pest pressure are real challenges for varieties developed elsewhere.

Twenty-four people attended the field day, including growers and industry representatives from fertilizer, seed and irrigation companies.

(Lamberts, Vegetarian 98-04)

III. PESTICIDE UPDATE

A. IPM Definition

Harold Coble (N.C. State) and the USDA IPM Committee have drafted a “definition” for IPM. This document may have great impacts on areas of IPM programming, especially in the measurement issue and the 75% goal.

Read the following and get your reactions to me or to Harold at: HCOBLE@MORRILL.REEUSDA.GOV.

Determining the Practice of IPM

A key in the determination of whether the Administration goal of 75% of US cropland acres under IPM by the year 2000 has been reached is some rational definition of what growers must do in order to qualify as IPM practitioners. Adoption of IPM systems normally occurs along a continuum from largely reliant on prophylactic control measures and pesticides to multiple-strategy biologically intensive approaches. IPM is site-specific in nature, but certain general criteria must be met at each site for control methods to qualify as IPM practices. At a minimum, each site should have in place a management strategy which includes Prevention, Avoidance, Detection, and Suppression of pest populations (the PADS approach). Adoption of the PADS approach will help reduce reliance on broad-spectrum, highly toxic materials. While pesticides should be applied as a last resort in suppression systems, some use will remain necessary. The more biologically intensive the approach in each of these strategies, the further along the continuum the grower is likely to be.

Prevention is the first line of defense, and includes such tactics as using pest-free seeds and transplants, preventing weeds from reproducing, cleaning tillage and harvesting equipment between fields or operations, using irrigation water free of pest organisms, using field sanitation procedures, and eliminating alternate hosts or sites for insect pests and disease organisms.

Avoidance may be practiced when pest populations exist in a field or site but the impact of the pest on the crop can be avoided through some cultural practice. Examples of avoidance include crop rotation such that the crop of choice is not a host for the pest, choosing cultivars with genetic resistance to insects or disease, using trap crops, choosing cultivars with maturity dates that may allow harvest before pest populations develop, and simply not planting certain areas of fields where pest populations are likely to cause crop failure.

Detection and proper identification of pests through surveys, scouting programs, or monitoring, including trapping, weather monitoring and soil testing, should be performed as the basis for any suppression activities. Records should be kept of pest incidence on a temporal and spatial basis for each field. Such records form the basis for crop rotation selection, economic thresholds, and suppressive actions.

Suppression of pest populations may become necessary to avoid economic loss if prevention and avoidance tactics are not successful. Suppressive tactics may include cultural practices such as narrow row spacings or optimized in-row plant populations, cover crops or mulches, or using crops with allelopathic potential in the rotation. Physical suppression tactics such as cultivation or mowing for weed control may be beneficial where soils are not prone to erosion, and temperature management or exclusion devices may play a role in postharvest pest management. Biological controls, where available, should be considered as alternatives to conventional pesticides, especially where long-term control of an especially troublesome pest species can be obtained. Chemical pesticides are the most widely-
used suppression tactic, particularly on large-acreage or high-value crops.

Chemical pesticides are important in IPM programs, but sound management of pesticide use involves the following: 1) The cost-benefit should be confirmed prior to use (economic thresholds); 2) Sprayers or other application devices should be calibrated prior to use and occasionally during the use season; 3) When available and where economically feasible, precision ag technology should be utilized to limit pesticide use to areas in fields where pests actually exist; 4) Pesticides should be selected based on least negative effects on environment and human health in addition to efficacy and economics; and 5) Chemicals with the same mode of action should not be used continuously on the same field in order to avoid resistance development.

(Stall, Vegetarian 98-04)

IV. VEGETABLE GARDENING


Every now and then I run across a new vegetable variety that is so outstanding that I want each of you agents to know about it. This is one of those cases.

The crop is okra. Our old standard variety with which every veteran gardener is familiar is of course ‘Clemson Spineless.’ These same gardeners also know that when its pods reach 5 to 6 inches in length they are tough and stringy. Not so with pods of ‘Cajun Delight.’ One gardener whose name I won’t mention for fear you would start calling him “Okry” or something told me about his experience with ‘Cajun Delight.’

Bill brought in his first bucket of okra for his wife to prepare. When he got home for dinner there was no okra cooking. When asked why, his wife said, “Why, you surely don’t think those cow horns are fit to eat! They are ready for the mulch pile.” At which he replied, “Whoa, hold on there. This is something new. I hear this okra has pods so tender you can eat’em a foot long.” So she cooked them and what he had heard was indeed correct. ‘Cajun Delight’ is a 1997 All America Award Winning Hybrid variety. To receive that designation, it had to be tested all over the U.S. and receive Superior ratings everywhere. Seed company catalogs tout it as the first okra to receive such an award since 1939. At 50 days it matures about a week earlier than ‘Clemson Spineless.’ The vigorous dark green plants are 4 to 5 feet tall, spineless, and produce excellent yields of tender, less fibrous pods over a long season.

‘Cajun Delight’ is offered by several seed companies, including Parks, Harris, and Gurney, making it readily accessible to Florida gardeners. So, if any more of you agents are also home gardeners, you might give it a try along with your other favorite varieties. You can at least tell your Master Gardeners and others about it.

(Stephens, Vegetarian 98-04)

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