Vegetarian 92-2 February 18, 1992

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I. NOTES OF INTEREST

A. Vegetable Crops Calendar.

March 5-6, 1992. Postharvest Horticulture Institute. University Centre Hotel, Gainesville. (Contact Steve Sargent).

March 9-12, 1992. Harvest and Postharvest Handling of Horticultural Crops. Tour of Central and South Florida. (Contact Steve Sargent).

March 10, 1992. Cabbage variety trial field day to evaluate 33 entries at Central Florida REC, Sanford (10:00 AM-noon, contact J. M. White).

March 17, 1992. The annual USDA-IFAS carrot hybrid trial will evaluate 54 experimental and named hybrids and 70 named or advanced entries in Zellwood. Plots are on Zellwin Farms, take the main road (Laughlin) on to the muck and follow the signs (1:00 PM, contact J. M. White).


II. COMMERCIAL VEGETABLES

A. Phytotoxicity from Foliar Detergents Sprays.

The proven efficacy of detergents in controlling Florida whiteflies (Stansly et al., SS-VEC-01) has fostered widespread use despite information suggesting usage can result in reduced plant weight (Vavrina and Stansly, SS-VEC-01). Recent trials at the SWFREC verify detergent sprays reduce plant weight, and reduce and delay yield in proportion to concentration and frequency of application.

Preliminary studies in the summer of 1991 indicated that detergent sprays reduced plant weight. A follow-up study in the fall of '91 was conducted to determine the detergent effect on fresh market tomato yield. "New Day" detergent (similar to Tide) concentrations of 0.25%, 0.5%, 1% and 2% were applied once or twice weekly, beginning one week after planting and continuing through week 10 of a tomato crop. Application volumes ranged from 50 to 150 gallons per acre depending on crop maturity; application pressures ranged from 150 to 200 psi. Plant dry weight was determined at two week intervals through week 9 of the crop. Yield and grade were assessed as a result of treatment.

Untreated plants had higher plant weight throughout the sampling period, weighing significantly more than all detergent treated plants at week seven. However, by week 9 the untreated plant significantly out weighed only the 1% and 2% detergent treated plants. All concentrations of detergent caused greater plant weight reduction when sprayed twice weekly as opposed to once.

The apparent reduction in growth exhibited by the detergent treated plants through the first 7 weeks in the field resulted in a significant yield reduction at first harvest (Figure 1). The increased yield realized by the untreated plants appeared to be a function of fruit size, as plants not treated with detergent produced more extra large fruit than detergent treated plants at first harvest (Figure 2). Again the reduction in yield and extra-large tomatoes was heightened if detergent was applied twice weekly.

Yields of detergent treated tomatoes (especially low concentrations) tended to compensate for early low yields at second and third harvest. This suggests that detergents tended to delay maturity except
where phytotoxicity was apparent (1% and 2%).

Combined data of all three harvests showed that the untreated plants and plants treated with the lower concentrations of detergent (0.25% and 0.5%) yielded similarly (Figure 1). Significant differences in total yield existed only between the untreated plants and the 1% and 2% detergent treated plants. However, the disparity in yield of extra-large tomatoes persisted between the untreated and detergent treated plants (Figure 2).

The effect of spray frequency was also pronounced on the yield of extra-large tomatoes. If sprayed twice a week, the reduction extra-large tomato yield was greater than if sprayed once a week, regardless of detergent concentration.

Detergent concentrations presently used by growers in the field (0.25%) appear to be effective in controlling whiteflies and causing little damage with respect to plant weight loss and yield reduction. The overall effect of spraying detergents at low concentrations appears to be one of delayed maturity rather than outright phytotoxicity, as low rates generally rebound from early weight loss and produce yields similar to the untreated plants. The use of low detergent concentrations is warranted providing the frequency of application is not excessive enough to effect yield.

(Vavrina & Stansly, Vegetarian 92-02)

FIG. 1 DETERGENT EFFECTS ON TOMATO YIELD

![Graph showing detergent effects on tomato yield](image-url)
FIG. 2 DETERGENT EFFECT ON X-LARGE YIELD

B. National Symposium on Stand Establishment in Horticultural Crops.

The third biennial National/International Symposium on Stand Establishment for Horticultural Crops will be held November 16-20, 1992 in Ft. Myers, FL at the Sheraton Harbor Place Hotel. This symposium is presently co-sponsored by the American Society for Horticultural Science, the Florida Fresh Fruit & Vegetable Association, the Florida Seedsmen & Garden Supply Association, and the Florida Tomato Committee.

Biotic and abiotic factors contribute to successful stand establishment and hence the optimization of crop production. Such factors begin with the seed and effect the crop through juvenility into early maturity. This symposium is designed to investigate this realm of factors and endeavors to keep you current in the state of the art of stand establishment.

Scientists from over 20 states and 6 countries have regularly attended. Previous symposia have presented a diverse selection of topics in three general areas:

Seed - seed enhancements, seed coatings, seed moisture, vacuum moisturization, matriconditioning, solid matrix priming, priming with biological control agents, seed storage and handling.

Transplants - ebb & flow and conventional transplant production, transplant age and cell size, pruning, nutrient conditioning, postharvest packing and storage, transplanting technology including automatic transplanting.

Field Establishment - direct seeding technology, gel seeding, soil amendments, mulches, control of seedling diseases (biological and otherwise), row
covers, cultural practices to improve stands, nutritional and environmental effects on crop establishment.

The symposium will include invited papers, contributed papers, posters, industry booths, and field tours of southwest Florida production areas and transplant houses. Research scientists, extension specialists, growers, and students are encouraged to participate. For more information on the symposium, contact: Office of Conferences (ask for Monique), 551 IFAS/University of Florida, Gainesville, FL 32611-0551 or call 904-392-5930. Please Register Early.

(Vavrina, Vegetarian 92-02)

C. Looking for the Best Supersweet Sweet Corn.

Each sweet corn grower and breeder has his/hers ideas on the best sweet corn to produce. In order to help everyone to see and judge for themselves, a supersweet (shrunken-2 gene) sweet corn variety trial was conducted in the Zellwood area during the spring of 1991. Planting by hand was done on March 29 in plots 20 ft long using 9-inch in-row spacing. A randomized complete block design was used for 76 entries in the replicated trial. Only first ears were harvested and individual plots were harvested once. The data collected on each entry is presented in Research Report SAN 91-01, August 1991. The real value of the trial was the Field Day where growers and seedsmen could go through the plots and judge for themselves. Unfortunately, there is no written record of their comments that can be used publicly. So, I will include only my comments and opinions on the varieties and lines which were the best during this trial. Please remember, another season and another set of growing conditions may produce another "top 10."

Yield as measured in crates/acre was not found to be significantly different for the top 10 entries. Yield did range from 332 to 269 crates/acre. Paksweet, Challenger, ES-XP-35, XPH 2687, Supersweet 8102, and Showcase had the best overall horticultural characteristics of the highest yielding 10 entries. Ear tip fill, husk cover, ear appearance, ear length, ear diameter, and ear shape were all considered. It is encouraging to note that two unnamed lines, ES-XP-35 from the Everglades Research and Education Center and XPH 2687 from Agrow were in the top entries. The "pipe line" has many lines with potential. This year’s variety trials should showcase some of these and will be of interest to growers who would like to see the new material compared to their choices of reliable varieties.

(White, Vegetarian 92-02)

III. VEGETABLE GARDENING

A. Effects of Variety on Sweet Potato Weevil.

The following is a report by George Henry (Leon County Extension Agent - Agronomy) on a study he has been doing for two years on the sweet potato weevil.

In the late 40's and 50's, almost every farm family within Leon County was engaged in sweet potato production to one extent or another, as was the case throughout the rural counties of Florida. The sweet potato weevil was prevalent as a destructive pest, but was kept under control by the use of DDT. Since the banning of this insecticide, weevil infestation has reduced the acreage in Leon County to 35 acres or less.

In May 1990, George received and planted for trial six cultivars from Dr. P. K. Duke, USDA Vegetable Laboratory at Charleston, SC. These cultivars were: 'Excel', 'Beauregard', 'Southern Delight', 'Sumor', and 'Regal'. The standard was 'Jewel'.

In his study, George evaluated the following: sweet potato weevil, flea beetle, wire worm, cracking, soil rot, drought resistance, and storage life.
In June 1991, the trial continued but was amended to include only ‘Southern Delight’, ‘Beauregard’, ‘Regal’, ‘Excel’, and a new bunch-type cultivar numbered ‘W-241’.

Results and Comments

On plots planted in 1990, each cultivar was observed for percentage of root damage. Table 1 shows the results of these observations.

‘Regal’ - showed higher resistance to weevil damage than any other variety in the trial. This resistance had been observed earlier by Dr. Duke and others. ‘Regal’, with its bright purplish skin, showed no visible signs of weevil infestation. It and the other cultivars had been cultivated deeply to keep roots below the soil surface. The resistance was observed even though weevils trapped were 4% higher in numbers than for the other varieties. ‘Regal’ was rated as a good yielder, but poor keeper.

‘Beauregard’ - roots developed much faster than the other varieties. The roots began swelling near the soil surface, thus providing exposure to weevils. ‘Beauregard’ was an excellent yielder/keeper, but did have some weevil damage (30% of crop damaged).

‘Excel’ - suffered a moderate amount of weevil damage (65%+). Its roots were exposed as in the case of ‘Beauregard’, but took longer to develop. It is an excellent yielder with fair storage life. ‘Excel’ also showed good signs of nutsedge suppression both in 1990 and 1991.

Other varieties tested - results are outlined in the table.

Dr. Richard Sprenkel, IFAS IPM specialist, Quincy, assisted in the weevil trapping procedure. They found weevils to be unusually high where sweetpotatoes followed sweetpotatoes. Even so, as has been stated, ‘Regal’ showed good resistance even though it was planted in 1991 following sweetpotatoes in 1990 on the same plot.

This summarizes the study. George Henry has more detailed information if needed.

(J. M. Stephens/George Henry, Vegetarian 92-02)
### 1990 Results
Sweetpotato Variety Trials

<table>
<thead>
<tr>
<th></th>
<th>S.Potato Weevil Damage</th>
<th>Flea Beetle Damage</th>
<th>Wireworm Damage</th>
<th>Grubworm Damage</th>
<th>Cracks in S.Potatoes</th>
<th>Decay or Soil rot</th>
<th>Storage or Shelf Life</th>
<th>Drought Resistance</th>
<th>Possible Future Yields</th>
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<tr>
<td>Beauregard</td>
<td>XX</td>
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<tr>
<td>Southern Delight</td>
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<td>X</td>
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<td>Sumor</td>
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<td>0</td>
<td>X</td>
<td>G</td>
<td>G</td>
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XXX - Greatest Amount of Damage 65% or over  
XX - Damaged Somewhat - 35% or less  
X - Lesser Amount of Damage - 20% or less  
0 - No Damage - 0%  
E - Excellent  
F - Fair  
P - Poor  
G - Good
<table>
<thead>
<tr>
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<th>Prepared by Extension Vegetable Crops Specialists</th>
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<tbody>
<tr>
<td>Dr. D. J. Cantliffe</td>
<td>Dr. G. J. Hochmuth Dr. D. N. Maynard</td>
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<tr>
<td>Chairman</td>
<td>Assoc. Professor Professor</td>
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<td>Dr. S. M. Olson</td>
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<td>Mr. J. M. Stephens</td>
<td>Dr. C. S. Vavrina Dr. J. M. White</td>
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<td>Professor &amp; Editor</td>
<td>Asst. Professor Assoc. Professor</td>
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