VEGETARIAN NEWSLETTER

January, 1982

Prepared by Extension Vegetable Crops Specialists

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TO: VEGETABLE AND HORTICULTURE AGENTS
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I. NOTES OF INTEREST

A. New Publications


2. Outline of Current Research and Extension Projects on Strawberries, GC 1981-17, by W. E. Waters is available from the Bradenton AREC, 5007 60th St. E., Bradenton, FL 33508.

(Maynard)

II. PESTICIDE UPDATE

A. Ethylene Use Label Required

The following statements do not represent any change in the status of ethylene, but they are meant to serve as a reminder to the users of ethylene gas.

Ethylene gas used for plant regulation such as coloration or ripening of fruits and vegetables is legally regarded as a pesticide for regulatory purposes. Therefore, it must be registered with the EPA and the state of Florida. Containers must bear EPA approved labeling including EPA registration and establishment numbers, intended uses, ingredients statement, and appropriate precautionary labeling statements.

Users should insure that their suppliers are providing them with registered ethylene in properly labeled containers.

(Sherman and Stall)
III. COMMERCIAL VEGETABLE PRODUCTION

A. Boron Toxicity on Tomatoes in Southwest Florida

What can vegetable growers do about the increasingly painful economic crunch most have been experiencing during the past decade. The options are few. (1) They can strive for higher yields and better quality. (2) They can try to reduce costs wherever possible by further tightening an already taut belt. (3) They can hope to get an occasional bargain on some of the inputs of production or marketing such as pesticides, fertilizers, machinery and containers. (4) They can pray for better prices for what they sell. (5) They can hope for the discovery of oil, uranium or gold on their land.

Farmers live in a hard, real world, thus options (1) and (2) are usually chosen.

In their effort to increase yields and protect quality some growers increase specific inputs beyond the "help level" and actually create new problems. A dramatic example of overuse of micronutrients occurred in tomato fields in southwest Florida recently.

Several tomato fields in the Manatee-Ruskin area exhibited a progressive firing and necrosis of the lower leaves. This overall scorching did not fit typical nutrient deficiency symptoms, evidence of disease organisms, or insect damage. The farmers' fertilizer and spray program was examined in detail. The scorch was greatest in the mulched beds near the irrigation furrow. Application rates of micro-nutrient mix ranged between 70-100 lbs to the acre. In some areas the firing had progressed up to the top of the plant with one side more affected than another.

The recent "late firing" problem was examined by a group of soil scientists, plant pathologists, plant physiologists, and horticulturists. Leaf samples, analyzed by Dr. Jack Waltz of AREC - Bradenton, showed boron concentrations between 130-200 ppm in some of the most troubled fields.
It is generally believed that B levels in excess of 100 ppm on a dry wt. basis can be toxic. Dr. Woltz had observed similar symptoms on chrysanthemums which led him to suspect B toxicity.

Just because a little is good, more may not be better. The fertilizer salesman warned these growers of the potential danger but in an effort to increase yields, the helpful level was exceeded and this problem developed. Rather wide ranges of N-P-K can be tolerated by many crops, but most can only tolerate moderate ranges of the secondary nutrients (Mg, Ca, S) and very limited ranges of the micronutrients such as B, Mn, Zn and Cu.

Growers may apply these micronutrients as single element materials to the soil or as foliar sprays. They may also select broad spectrum micronutrient mixtures to be mixed into the soil directly or mixed into complete fertilizers for band or bed incorporation. A usual applied rate of broad spectrum micronutrients is 25-30 lbs. per acre, with a typical composition as follows:

- **Boron** 3%  
- **Copper** 3%  
- **Iron** 18%  
- **Manganese** 7.5%  
- **Zinc** 7.0%  
- **Molybdenum** 0.2%

This rate would supply approximately 0.9 lb. elemental B, 0.9 lb. of copper, etc.

Extension agents and fertilizer salesmen can guide growers to use safe micronutrient levels. Hundred-acre tomato fields demonstrating micronutrient toxicity symptoms are hard lessons we all hope will not be repeated.

(Marlowe)
IV. HARVESTING AND HANDLING

A. Influence of Harvest Date and Cultivar on Semimechanically Harvested Fresh Market Tomato Yields

'MH-1' and two new jointless Florida tomato releases, 'Burgis' and 'Hayslip', were evaluated for yield characteristics with the IFAS semimechanical fresh market harvester during the fall 1980 at the Agricultural Research Center, Fort Pierce, Florida. Results of this work were presented at the Florida State Horticultural Society Meetings in Orlando in November, 1981. The work was done by P. J. Stoffella, Ft. Pierce ARC, M. Sherman, Vegetable Crops Department, Gainesville, and F. G. Martin, Statistics Department, Gainesville.

Three replications of fifty-foot plots were harvested with the IFAS semimechanical fresh market harvester either 85 or 99 days after transplanting. All culls were removed and colored and green fruit were separated by an 8 person crew on the harvester. Further separation of colored fruit into red and pink fruit was completed after the harvest operation. Mature green, pink, and red marketable fruit yields were weighed and pink and red fruit counted.

No significant difference for total marketable yields occurred between the two harvest dates (Table 1). 'Burgis' had significantly higher total yields than 'Hayslip' or 'MH-1'. No significant harvest date x cultivar interaction occurred for any measured variable.

Table 1. Total marketable fruit yields.

<table>
<thead>
<tr>
<th></th>
<th>Harvest Date</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>85 Days</td>
<td>99 Days</td>
</tr>
<tr>
<td>Burgis</td>
<td>1313</td>
<td>1460</td>
</tr>
<tr>
<td>Hayslip</td>
<td>1140</td>
<td>1180</td>
</tr>
<tr>
<td>MH-1</td>
<td>987</td>
<td>1120</td>
</tr>
</tbody>
</table>

^2Mean separation by Duncan's Multiple Range Test, 5% level.
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The first harvest date (85 days after transplanting) had significantly more green fruit and less colored fruit than the second harvest (99 days after transplanting) (Table 2). The higher yields of 'Burgis' were due to the greater number of colored fruit when compared to 'Hayslip'. The mean colored fruit weight was 0.35 lbs/fruit for 'Burgis' and 'Hayslip' compared to 0.27 lbs/fruit for 'MH-1'.

The high percentage of colored fruit and low percentage of green fruit (Table 2) indicate that 'MH-1' was the earliest maturing cultivar. 'Burgis' matured later than 'MH-1' but earlier than 'Hayslip'.

Table 2. Percentage of green and colored fruit.

<table>
<thead>
<tr>
<th>Harvest Date</th>
<th>85 days</th>
<th>99 days</th>
<th>Mean</th>
<th>Green &amp; Red</th>
<th>Green &amp; Red</th>
<th>Green &amp; Red</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Green</td>
<td>Pink</td>
<td>Pink</td>
<td>&amp; Red</td>
<td>&amp; Red</td>
<td>&amp; Red</td>
</tr>
<tr>
<td>Burgis</td>
<td>83</td>
<td>17</td>
<td>40</td>
<td>60</td>
<td>61 b²</td>
<td>39 b</td>
</tr>
<tr>
<td>Hayslip</td>
<td>91</td>
<td>9</td>
<td>61</td>
<td>39</td>
<td>76 a</td>
<td>24 c</td>
</tr>
<tr>
<td>MH-1</td>
<td>73</td>
<td>27</td>
<td>21</td>
<td>79</td>
<td>47 c</td>
<td>53 a</td>
</tr>
</tbody>
</table>

²Mean separation within columns by Duncan's Multiple Range Test, 5% level.

Sand damage was observed on all fruit during the harvesting operation. Most of this occurred at the fruit separation stage. Damage was severe enough to detract from fruit appearance following ripening.

Although further testing is needed, these results indicate that both 'Burgis' and 'Hayslip' are better cultivars for mechanical harvesting with the IFAS semimechanical harvester than 'MH-1'. It also appears that the ratio of colored versus green fruit can be regulated by different harvesting dates without adversely affecting yields.

(Sherman)
Know Your Minor Vegetables - Parsley

Parsley, including both the leaf type, Petroselinum crispum (Mill.) Nym. and the root type, Petroselinum crispum (Mill.) Nym. (Tuberosum group), is a member of the same family as celery-Umbelliferae. The plant is native to the same Mediterranean area as celery. The name Petroselinum is derived from the Greek work "petros" which means "stone" referring to the plants habit of growing in rocky places. "Selinon" was the Greek word for parsley in the 3rd and 4th centuries B.C.

Both the crowded, dense-leaved type and the broad open-growing type were described in the 4th century B.C. Parsley was common in northern Europe in the 13th century, and was introduced into England from Sardinia in 1548. European colonists brought parsley to the U.S. in the 17th century.

Parsley is grown throughout Florida, both as a commercial crop of minor importance in the vegetable producing areas of central and south Florida, and in gardens from Key West to Pensacola.

Parsley is a leafy plant, although there is a rooting form. Leaf shape is triangular and varies from three-leaflet to curled and finely cut. The leaves are used mainly for garnishing meats, fish and other dishes. The finely chopped leaves are also used as flavoring. Fresh green parsley, however, should not be left on the plate but should be eaten raw to take advantage of the nutritious vegetable that it is.

There are numerous cultivated varieties of parsley including 'Curled Leaf', a very finely divided leaf type; 'Italian' (or Plain-Leaf), a less decorative but flavorful parsley that most closely resembles the original non-curly plants of Europe; 'Hamburg', whose white roots resemble young parsnips; 'Neapolitan' (or Celery Leaf), grown for its leaf stalks which are eaten like celery; and 'Dwarf', suitable for ornamental edging of a garden.
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Parsley is a cool season biennial that is grown as an annual in Florida. It is propagated by planting seed, either in the fall (September - October) or in the spring (February - March). The seeds germinate better if soaked for 24 hours before planting. They should be sown very shallow, about 1/4 inch deep, and covered with a thin mulch layer until the seedlings appear. Germination takes several days. Seedlings may be transplanted later.

Only a few plants are needed to serve the needs of most families, and these may be grown in containers. Space plants 6 inches apart in rows, one foot apart in the garden. Keep the soil well watered, as parsley requires very moist soil. Careful weeding is necessary. A complete fertilizer at planting time followed by monthly feeding with a nitrogen fertilizer is best on most Florida soils.

Parsley leaves are ready for use about 3 months after seeding. A few leaves at a time may be removed from each plant, or the entire bunch of leaves may be removed for use. Although parsley leaves are used most commonly in the fresh green condition, their characteristic flavor and green color can be retained if the leaves are dried rapidly.

Dehydrated parsley flakes are produced commercially in California (over 1 1/2 million pounds produced annually, with 12 pounds of destemmed fresh parsley producing 1 pound of the dried product).

The plants flower in the second year, and as soon as the seed is ripe, it may be collected and dried. All parts of the plant contain a volatile oil called apiol, extracted and used in medicine. Parsley seed oil is used for flavoring.

Green parsley leaves have a mild, agreeable flavor, and are an excellent source of vitamin C, iodine, iron and other minerals. Quite often parsley is left on the plate to become the last bite, as it tends to sweeten the breath.
Turnip-rooted parsley is the type that forms edible leaves and an edible root which is white, dry, and celery-like in flavor. In shape and appearance, the root resembles a slender parsnip. It is used as a cooked vegetable, like carrot or parsnip. It has a long history of use as a winter vegetable in Holland, Germany, and Poland, as is indicated by such names as Hamburg and Dutch parsley.

(Stephens)