Vegetarian 87-06

June 12, 1987

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I. NOTES OF INTEREST

A. Vegetable Crops Calendar.

June 20, 1987. Live Oak Vegetable Field Day, Live Oak AREC.
(Contact G. Hochmuth)

(Contact J. M. Stephens)

(Contact J. M. Stephens)

(Contact Jim Stephens or Bob Black)


B. New Publications.


Weed Control in Row Middles of Mulched Cauliflower.


II. COMMERCIAL VEGETABLES

A. Vegetable Demonstrations at Live Oak.

As part of the effort by IFAS to develop programs in north Florida to help the profitability of farming, the Vegetable Crops Department is demonstrating vegetable production practices and crops at the Live Oak AREC. These plots will be at their peak viewing quality during June. A field day will be conducted on Saturday, June 20.

There are 14 separate vegetable demonstrations at the station most of which involve mulching, transplanting, and fertilizing vegetables. The major crops are watermelons, muskmelons, peppers, and sweet corn. A short description of the major demonstrations follows. If you have growers who would like to see the demonstrations, please contact me and we can set up a date to see the plots. Everyone should be encouraged to attend the field day.

1. Watermelon Planting Systems - Watermelons grown on plastic mulch compared to growth on bare ground; transplanting versus direct-seeding; plant spacing. All the factors are included in one large demonstration so that we can evaluate any interactions. Projected harvest for the transplants on plastic is June 4.
2. Watermelon Cultivars - Trials include full-size melon cultivars and several ice-box cultivars.

3. Muskmelon Planting Systems - This study is similar to the Watermelon Planting System demo. We have included a few seed treatments such as seed priming in an effort to achieve uniform stands with fast emergence and early yields.

4. Muskmelon Cultivars - Ten cultivars are being evaluated for yield and horticultural characters. We have included some of the "Eastern types" in an effort to find a melon that we can produce here in Florida and ship into the northeast markets. In addition, we have several of the newer "West Coast" shipping melons.

5. Sweet Corn Planting Systems - We are evaluating methods to achieve early and uniform stands of supersweet-type sweet corns. We are evaluating plastic mulches of various types and application methods in addition to studying the possibility of transplanting sweet corn.

6. Pepper and Sweet Corn Fertility - Several demonstrations are underway to show optimum fertilizer levels (determined by soil testing) and optimum placement and time of application. The focus is on nitrogen and potassium.

(Hochmuth Veg. 87-06)

B. Estimation of Vegetable yields.

The prediction of crop yields before the harvest aids in the scheduling of harvests of various fields for total yields, as well as harvest to obtain highest yields of a particular grade or stage of maturity. To estimate yields, follow these steps:

1. Select and measure a typical 10-ft section of a row. If the field is variable or large, select several 10-ft sections.
2. Harvest the crop from the measured section or sections.
3. Weigh the entire sample for total yields or grade the sample and weigh the graded sample for yield of a particular grade.
4. If more than one 10-ft section has been harvested, divide the yield by the number of sections harvested.
5. Multiply the sample weight in pounds by the conversion factor in the table for the appropriate row spacing. The value obtained will equal hundredweight (cwt) per acre.

Conversion Factors for Estimating Yields

<table>
<thead>
<tr>
<th>Row Spacing (in.)</th>
<th>Conversion Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>43.6</td>
</tr>
<tr>
<td>15</td>
<td>34.8</td>
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<tr>
<td>18</td>
<td>29.0</td>
</tr>
<tr>
<td>20</td>
<td>26.1</td>
</tr>
<tr>
<td>21</td>
<td>24.9</td>
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<tr>
<td>24</td>
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<tr>
<td>42</td>
<td>12.4</td>
</tr>
<tr>
<td>48</td>
<td>10.9</td>
</tr>
</tbody>
</table>

Example 1: A 10-ft sample of carrots planted in 12-in. rows yields 9 lb of No. 1 carrots.

9 X 43.6 = 392.4 cwt/acre

Example 2: The average yield of three 10-ft samples of No. 1 potatoes planted in 36-in. rows is 26 lb.

26 X 14.5 = 377 cwt/acre

(Maynard Veg. 87-06)
C. Cool Vegetables Properly to Preserve Quality.

Fresh vegetables are living products and will continue to be so during the varied handling operations from harvest to consumption. The most significant life process is respiration wherein carbohydrates and flavor ingredients are lost; energy required for this life process is heat which is also a by-product of respiration.

On a typical day this time of year, when vegetables are harvested the temperature may be in the 90's but temperature of the produce that has been exposed to the sun may be as high as 120. Under such conditions, quality of the harvested vegetables can best be maintained by the rapid removal of field heat, thus reducing the respiration process to a minimum.

The normal rate of respiration varies considerably among vegetables and therefore not all of them benefit equally from the rapid removal of field heat. Generally speaking, vegetables with the highest respiration rate benefit most from precooling. Vegetables with a high respiration rate are broccoli, sweet corn, snap beans, okra, and spinach. Vegetables with a low rate of respiration are cucumbers, dry onions, potatoes and watermelons; other vegetables have an intermediate respiration rate. A few of the vegetables are chilling-sensitive and therefore are damaged by exposure to low temperature. Snap beans, cucumbers, eggplant, melons, okra, peppers, squash, sweet potatoes, and tomatoes are chilling-sensitive vegetables and therefore exposure to temperatures below 40 - 45°F should be avoided. Quality of other vegetables can be best maintained by holding near 32°F.

Method of precooling should be based on availability, compatibility of the vegetable and container to the particular method, and economics of the operation. Listed below are various types of cooling methods and some of their advantages or limitations:

ROOM COOLING - Can be used with all commodities. Too slow for most perishable commodities, uneven cooling within loads, pallets, and individual containers. Major benefit is for holding commodities that have been precooled by some other method.

FORCED-AIR COOLING (PRESSURE COOLING) - Well adapted to fruit-type vegetables, tubers, cauliflower. Much faster than room cooling, and cooling rates are more uniform if properly used. Container venting patterns and stacking arrangements are crucial to effective cooling.

HYDROCOOLING - Adapted to stems, leafy vegetables, and fruit-type vegetables. System is very fast and there is uniformity in cooling. Requires daily cleaning and adherence to sanitation procedures. Product and container must be tolerant to wetting.

PACKAGE-ICING - Best adapted to roots, stems, some flower-type vegetables and green onions. Method is fast but limited to commodities and containers that can tolerate water/ice contact. Limitations are that "bridging" may occur between layer of ice and product, thus transfer of heat is diminished. "Slush" or "ice slurry" is a special adaptation whereby crushed ice is mixed with water and the blend is injected into the container with vegetables. This method cools produce very rapidly and is efficient.

VACUUM COOLING - Best adapted to leafy vegetables, some stem and flower-type vegetables with "wetting" which precedes the actual vacuum cooling process. For effective cooling the commodity must have a favorable surface-to-mass ratio. The process causes about 1%
wt. loss for each 6° C cooled; addition of water during cooling can prevent this weight loss. Water-tolerant containers are required. "Hydro-vac cooling" is a special adaptation of vacuum cooling; cold water is added prior to release of the vacuum which additionally cools the product, and also some of the water lost during vacuum cooling is replaced by the added water.

Of the five precooling methods only the room cooling and forced-air cooling systems are restricted to stationary installations; all other systems can be mobile, however, there are restraints as to cooling capacity.

(Gull, Veg. 87-06)

III. VEGETABLE GARDENING

A. Jacksonville's Harvest Fair a Success in 1987.

Once again samples of a bountiful harvest from downtown gardens in Jacksonville were on display by proudful owners during the 1987 Urban Gardening program's Harvest Fair. The annual event was held at Riverside Park (5-Points) on Saturday, May 30. It attracted approximately 1000 exhibitors, participants, and visitors during the course of the 4 hour period of activities.

The Urban Gardening project in Jacksonville is Florida's only participating city in the Federal program which includes 21 cities. Cities receive various amounts to promote gardening in low-income disadvantaged areas, but Jacksonville has gotten $150,000 each year since 1979 to operate the program. The Jacksonville project, dubbed "Gardening Lots", assists residents who want to improve family nutrition, eat fresher vegetables, and enjoy the other benefits of gardening. While door-yard gardeners are also helped as participants in the program, the primary educational thrust is aimed at community gardens.

Currently the Jacksonville Department of Housing and Urban Development calculates that about 69,000 low-income residents live inside the target areas of the program. In 1986 the Urban Gardening staff made about 15,000 contacts with about 6,500 participants in the program, which included 34 community garden sites (510 plots per season, 1,530 plots per year, and 4,590 persons per year). Community gardens involved 20.67 acres of produce valued at $756,000. In addition there were 92 school gardens (2,760 participants), 223 container gardens, and 8.35 combined acres of home gardens. The total estimated value of all gardens was $1,120,000 (using the SMOG formula).

Sites for the community gardens range across the city in a variety of locations and situations. One of the largest and best is located adjacent to the Gardening Lots headquarters building, an old WWII canning center. Its close proximity to the staff allows them to conduct more in-depth demonstrations than out in the fringes of the city. Another outstanding garden is situated next door to a bank. Noon time finds bank employees racing over to pull a few weeds, eat a quick sandwich garnished with home-grown lettuce and tomato, then quickly returning to report progress to co-workers. Many gardens are located in school-yards, where proud 3rd and 4th graders are eager to show you their radishes (always badly in need of thinning). And still other gardens sit precariously on the brink of extinction, balanced delicately between apathy and drought, yet coaxed onward by the steadfast efforts of some loyal ex-farmer's wife.
From this hodge-podge of plots the produce came in to the Harvest Fair, to be shown with pride and with hope for the bright red, white, and blue ribbons. Prizes and awards also included general gardening merchandise from local garden seed and supply stores. Competition first was by districts within the city, then over-all. Prizes were given for best vegetables, largest vegetable, (won by a 5 1/2 pound zucchini), vegetable basket, scarecrow, canned products, container garden, and winners of such contests as watermelon seed spitting, potato pushing, and potato peeling.

It was a fun-filled day, helping to prove once again that gardening is one of the most enjoyable, rewarding, and wholesome activities for young, old, and in-betweens.

(Stephens, Veg. 87-06)

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