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I. NOTES OF INTEREST

A. Vegetable Crops

Calendar.


June 20-24, 1988. 4-H Horticulture Institute, Camp Coverleaf. (Contact Jim Stephens).


B. New Publications.


II. COMMERCIAL VEGETABLES

A. Concept of Crop Nutrient Requirements in Vegetable Fertilization.

Plants require 16 elements (C, H, O, P, K, N, S, Ca, Mg, Fe, B, Mn, Cu, Zn, Mo, and Cl) for normal growth and reproduction. The crop nutrient requirement (CNR) for a particular element can be defined as the total amount in lb/A of that element needed by the crop to produce economic optimum yield. This nutrient requirement can be satisfied from many sources including soil, water, air, organic matter, or fertilizer. For example, the CNR of potassium (K) can be supplied from K-containing minerals in the soil, from K retained by soil organic matter, or from K fertilizers. When the soil cannot contribute anything toward the CNR (soil-test index is "very low"), then all of the
CNR must be supplied from fertilizer.

The CNR for a crop is determined from field experiments that test the yield response to levels of added fertilizer. For example, a watermelon potassium study might be conducted on a soil that tests "very low" in soil K. In this situation, the soil is expected to contribute negligible amounts of K to watermelon growth and yield. The researcher then plots the relationship of crop yield to K fertilizer rate. The CNR for K is equivalent to the fertilizer rate above which no significant increases in yield are expected, assuming negligible yield was obtained from the check plots where zero K was applied. The CNR values derived from such experiments thus take into account factors such as fertilizer fixation of the soils. In Florida, these types of experiments must be conducted for all of our major soil types (sands, mucks, rockland). If data are available from several experiments, reliable estimates of CNR values can be made.

If the researcher has access to plots that contain various levels of soil-test extractable potassium, then he can test the response to various rates of K and calibrate the soil-test extractant. Results from these studies will permit us to determine how much of the CNR for K can be supplied from the soil itself.

Using soil testing and the CNR concept in fertilizing vegetables, we can become more efficient fertilizer managers.

More precise fertilizer management will increase growers' profits and reduce the risks of groundwater pollution from overfertilization.

(Hochmuth, Veg. 88-01)

B. Field-Testing Potassium Crop Nutrient Requirements for Mulched Pepper.

Recently Ed Hanlon and I reviewed the Florida literature pertaining to fertilization of bell peppers. The research showed that the crop nutrient requirements for peppers are about 160-160-160 (N-P₂O₅-K₂O) pounds per acre. The 160 lb/A of P₂O₅ and K₂O would be used as fertilizer only on soils testing very low in phosphorus and potassium. Less P₂O₅ and K₂O would be recommended by the Extension Soil Testing Lab in situations where soil test indices are low or above. The 160 lb/A of nitrogen is recommended for each crop and should be enough for a 3- to 4 harvest crop.

During the review of literature, we could find only a few reports of research conducted on potassium requirements of pepper. To address this need, Ken Shuler, Phyllis Gilreath, Rick Mitchell, and I conducted several on-farm tests to help calibrate the Mehlich-I soil-test for potassium. In all, four studies were conducted and the results are presented in Table 1.
Table 1. Yield (3 harvests) of pepper at four locations in response to rates of potassium fertilizer.

<table>
<thead>
<tr>
<th>Location</th>
<th>K&lt;sub&gt;2&lt;/sub&gt;O treatments (lb K&lt;sub&gt;2&lt;/sub&gt;O per A)</th>
<th>Martin yield (bu/A)</th>
<th>Palm Beach yield (bu/A)</th>
<th>Manatee yield (bu/A)</th>
<th>Hillsborough yield (bu/A)</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Martin treatments</td>
<td>40 100 160 220 280</td>
<td>1100 1260 1260 1270 1220</td>
<td>NS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Palm Beach treatments</td>
<td>25 100 160 220 280</td>
<td>935 952 735 917 800</td>
<td>NS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manatee treatments</td>
<td>50 100 150 200 250</td>
<td>1300 1540 1438 1462 1298</td>
<td>NS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hillsborough treatments</td>
<td>75 100</td>
<td>490 490</td>
<td></td>
<td>NS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Melilich-I soil test indices were 24 ppm K in all fields except Hillsborough which was 73 ppm. The 24 ppm index is currently interpreted as very low which means that the soil should contribute nothing toward the crop nutrient requirement for potassium. Our current calibration calls for 160 lb/A of K<sub>2</sub>O to be applied as fertilizer in this situation.

However, results of our tests show that we obtained no response in yield above the lowest K<sub>2</sub>O treatment at all locations. This probably means that our current calibration for the Mehlich-I extractant is set too high and we are recommending too much K<sub>2</sub>O fertilizer for pepper. It is probable that the vegetable potassium calibration should be refined so that we are recommending more precise amounts of potassium. Our field tests are continuing this winter and spring in several locations in southern Florida.

(Hochmuth, Veg. 88-01)

C. Pepino - Not a Likely Crop for Florida.

Pepino, Solanum muricatum Ait., is a specialty vegetable being grown commercially for export in New Zealand and Australia. Some acreage is also being grown in California. It is native to South America.

The plant is propagated from terminal cuttings because there are few seed in the fruit, and most of those present are sterile. The cuttings root readily in a mist house, and are ready for transplanting to the field in about two weeks. The plant is herbaceous and bushy when grown as an annual, but becomes woody in frost-free areas where it persists as a short-lived perennial.

As part of the continuing program to identify specialty...
crops for production in west central Florida, pepinos were evaluated in the spring, summer, and fall of 1987 at the Gulf Coast Research and Education Center. Unrooted cuttings of 12 varieties were obtained from Dennis Pittenger, Vegetable Extension Specialist at the University of California-Riverside and small plants of 10 varieties (some duplicate) were obtained from a commercial nursery in southern California.

The spring and fall crops were grown in the field using the same cultural regime as is used for tomato production. The summer crop was grown in three-gallon polyethylene containers in a saranhouse. Although the plants grew vigorously and flowered profusely, very few fruit set - some varieties did not set a single fruit on 12 plants. Those fruit that set and developed to maturity were heart to egg shaped, light tan in color - some with purple streaks, and from 1/4 to 1/2 pound each. Poor fruit-setting has also been reported in California.

Because of its poor fruit-setting characteristics and high attraction to mites, it is unlikely that pepino will be a successful commercial specialty vegetable crop in Florida.

(Maynard, Veg. 88-01)

III. VEGETABLE GARDENING

A. Naming the Jerusalem Artichoke.

Vegetables get their common names in many odd and sundry ways, and the old moniker doesn't always seem to fit. One of the best and most puzzling examples is the Jerusalem artichoke.

Many common names can be associated somewhat closely or at least vaguely with their scientific (Latin) names. Some examples are carrot from *carota*, lettuce from *Lactuca*, beet from *Beta*, cucumber from *Cucumis*, and spinach from *Spinacia*.

Other names derive from a description of some part of the plant (eggplant, for instance), or from the name given it by Indians or other early acquaintances of the vegetable (such as squash from the Indian, *askuta* squash) or from the area of its origin or use (such as New Zealand spinach).

In the case of the Jerusalem artichokes, no one seems to know for sure just how its name applies to any thing about the vegetable. Of course, there is another artichoke, but the globe artichoke in no way closely resembles the Jerusalem artichoke. Nor does Jerusalem artichoke relate in any obvious way to its scientific name, *Helianthus tuberosum*. Some may have thought the Jerusalem artichoke tastes like the globe artichoke, but how would that explain the "Jerusalem" part of the name. Certainly the vegetable is not from Jerusalem, for it originated in North America. The old Indian name for it was "Kaischuc penesuk" (or 'penauk'), meaning sun and roots, from its resemblance to the sunflower, as a sunflower with roots. But, no matter how I try, I can't associate a similar sound between that name and Jerusalem artichoke.

So far, the best explanation is that it sounds...
like the Italian name for the plant, girasole articoccio, meaning edible sunflower. That makes more sense than the theory that Jerusalem is a corruption of 'ter Neusen' a village in Holland where the vegetable was first grown in Europe. And any similarity to topinambour (French)? Forget it.

Although the name Jerusalem artichoke is going to be around a long time, there are some better names commonly used, or at least names which make a bit more sense.

Sunchoke is very common, especially in the market place. According to National Gardening, in 1918 the English publication Gardener's Chronicle ran a contest to rename the Jerusalem artichoke. Out of hundreds of entries, the judges chose "sunroot", which was submitted by ten contestants. Of course, that was exactly what it was called by the Indians, so perhaps we should go full circle and all agree to rename it "sunroot".

(Stephens, Veg. 88-01)