



INSTITUTE OF FOOD AND  
AGRICULTURAL SCIENCES  
UNIVERSITY OF FLORIDA

FLORIDA  
COOPERATIVE  
EXTENSION SERVICE

# VEGETARIAN

## A Vegetable Crops Extension Publication

Horticultural Sciences Department • P.O. 110690 • Gainesville, FL 32611 • Telephone 392-2134

Vegetarian 93-3

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### Contents

#### I. NOTES OF INTEREST

- A. Vegetable Crops Calendar.
- B. New Publications.

#### II. COMMERCIAL VEGETABLES

- A. 40th Vegetable Field Day.
- B. Gomashō - Pepper Spot of Chinese Cabbage.

#### III. VEGETABLE GARDENING

- A. Grow Big Tomatoes by the "Mound" Method.

#### IV. 1990-1992 VEGETARIAN INDEX

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## I. NOTES OF INTEREST

### A. Vegetable Crops Calendar.

May 18, 1993. 40th Vegetable Field Day. Gulf Coast REC Bradenton. Contact Don Maynard.

### B. New Publications.

The following Suwannee Valley AREC Reports are available from the Suwannee Valley AREC (904/362-1725):

SVAREC 92-19. G. J. Hochmuth, R. C. Hochmuth. Nitrogen Fertilization of Summer Squash on a Sandy Soil.

SVAREC 92-20. George Hochmuth and Bob Hochmuth. Placement of N-P-K Fertilizer for Mulched, Drip-Irrigated Watermelons.

SVAREC 92-21. Robert C. Hochmuth and Catherine C. Ellis. Eggplant Cultivar Evaluation, 1991.

SVAREC 92-22. Robert C. Hochmuth, George J. Hochmuth, Michael E. Donley, and Michael C. Ross. Evaluation of Ten Greenhouse Tomato Cultivar for Production and Quality in North Florida in the 1991 to 1992 Season.

SVAREC 92-26. George Hochmuth, Ed Hanlon, and Bob Hochmuth. Foliar Nutritional Sprays Did Not Improve Yields or Grade of Watermelons or Potatoes.

## II. COMMERCIAL VEGETABLES

### A. 40th Vegetable Field Day.

Tuesday, May 18, 1993  
Field Day Coordinators -  
Don N. Maynard and John Paul Jones

Moderator: Don N. Maynard, Extension Vegetable Specialist

8:15 AM Registration.

8:45 Welcome and Introduction -  
W. E. Waters.

9:00 IFAS Research Overview -  
N. P. Thompson, IFAS Interim  
Dean for Research.

9:15 New Release Possibilities from the  
Tomato Breeding Program -  
J. W. Scott.

9:40 Update on the Tomato Mottle Virus  
- J. E. Polston.

10:00 COFFEE BREAK

10:30 Tours (Choice of Tour 1, 2 or 3).

12:00 BOX LUNCH

12:45 Tours (Choice of Tour 1, 2 or 3).

2:15 Tours (Choice of Tour 1, 2 or 3).

3:45 Adjourn.

3:45-5:00 Individual Talks with Faculty

Three tours will be available:

1. Vegetable Crop Improvement.
2. Vegetable Crop Protection.
3. Vegetable Crop Production.

Tour Guides:

Phyllis Gilreath, Manatee Co. Ext.  
Mark Kistler, Sarasota Co. Ext.  
Russell Owens, GCREC-Bradenton.

### B. Gomashō - Pepper Spot of Chinese Cabbage.

Pepper spot, black spotting disorder, or gomashō (Japanese) has been a problem in Chinese cabbage production areas this winter. The physiological disorder causes small black spots on the midribs of heading leaves. According to the Asian



Vegetable Research & Development Center (Chinese Cabbage, Proc. 1st Intnat'l Symp., N.S. Talekar and T.D. Griggs, Editors) pepper spot is believed to be caused by an excess of nitrogen, though excesses of magnesium and manganese, a deficiency of boron, or cauliflower mosaic virus may produce similar symptoms.

Pepper spot generally begins at head formation and appears as a number of black spots (about the size of broccoli seeds) first on the midribs of outer heading leaves, then eventually throughout the head. Microscopy reveals that these spots are areas where the cytoplasm has been destroyed, possibly from nitrite ( $\text{NO}_2^-$ ) toxicity.

Pepper spot is believed to result from a breakdown in nitrate ( $\text{NO}_3^-$ ) metabolism. Nitrate metabolism within the plant is enzyme driven:  $\text{NO}_3^- > \text{NO}_2^- > \text{NH}_3 > \text{amino acid (protein)}$ . Nitrite and ammonia ( $\text{NH}_3$ ) are toxic to the plant in high concentrations. In Chinese cabbage leaves, nitrate is located in the midribs and veins, and changes to amino acids in the leaf blades. In cases where midrib  $\text{NO}_3^-$  levels are excessive, enzymatic conversions to amino acid are backed-up and localized pools of  $\text{NO}_2^-$  result in tissue death.

Pepper spot seems to be aggravated by heavy fertilizer side-dressing after head formation. Therefore a side dressing program of say 90, 90, 90 lbs N/acre will produce more pepper spot than a side dressing program of 45, 0, 0 lbs N/acre. Once head formation begins, side dressings should be discontinued.

Cultivar differences in susceptibility to pepper spot have been implicated in Japan. However, cultivars offered in the US do not generally specify pepper spot susceptibility or resistance. Susceptibility of cultivars has been shown to vary from year to year as well.

Post harvest storage of Chinese cabbage with pepper spot is critical as temperatures above  $41^\circ\text{F}$  aggravate the condition. Care should be taken to reduce

head temperature to  $32 - 34^\circ\text{F}$  prior to shipment and to maintain these temperatures during transport.

(Vavrina, Vegetarian 93-03)

### III. VEGETABLE GARDENING

#### A. Grow Big Tomatoes by the "Mound" Method.

Want to grow a tomato plant with 40-60 tomato fruits, both large and small on it at the same time - on just one plant? I'm not talking about a cherry type or some other small fruiting variety. I mean the big ones - the kind most of us prefer in our gardens.

By using tomato mounds prepared in a unique way, you can grow tomato plants with almost unbelievable yields of quality tomato fruits.

The mounds for your tomatoes are easy to make. All you need are some tomato stakes, cow manure, fertilizer, old newspaper, and tomato plants. Just follow these simple steps:

#### Soil Preparation

1. Prepare the soil as usual. Take a soil test and adjust the soil to the proper pH.

#### Spacing Requirements

2. On the area you plan to plant, space the mounds 3 feet apart. Measure this distance from the center of each mound. Mark the place each mound will be, so you can find it for the next step.

#### Preparing the Mound

3. At each place you want to make a mound, place a double layer of unfolded newspaper flat on the ground. The paper seems to keep the water and fertilizer in the soil, where the plant roots can use it. Then it rots away so the roots can go deeper if necessary.

4. In the middle or center of the paper, place one gallon of rotted cow manure (or you can substitute composted yard waste).



5. Make a cup-shaped hole in the center of the manure with your fist or a trowel. Make it deep enough so it is almost down to the newspaper.

6. Pour one and one half cups of a common garden fertilizer (6-6-6, 6-8-8 or 8-8-8) into this cup-shaped hole. Do not mix the manure and fertilizer together.

7. Use a hoe or rake and pull the soil up around the newspaper, over the manure and fertilizer, until three to four inches of soil is mounded above the manure pile. Again, do not mix the soil with manure and fertilizer.

8. On top of the mound, dig a hole in the center large enough to fit the tomato plant in. Place the plant in the hole, water it and then firm the soil around the stem of the plant to get rid of any air pockets.

#### Care

9. Water the plant with or without a liquid fertilizer solution for a week or two until the plant starts to grow. Then, you will not have to fertilize the plants for the rest of the season because the plant roots can reach the fertilizer you have put in the soil.

10. Use a wire "cage", or place two to three sturdy, 4 to 6 foot tomato stakes around each mound. As the plant grows, support it to these stakes with string.

11. Water and care for the plants as usual. Remember you don't need to fertilize or sidedress the plants. Most of the plant roots will be in the mound where the manure and fertilizer are, but some will go through the paper into the soil underneath. With the 'Flora-Dade' variety the plants do not have to be pruned. But if you use an indeterminate type, such as 'Better Boy', prune it to 2 or 3 main stems.

12. Although the 'Flora-Dade' is the variety suggested, I'm sure your favorite variety would also grow well in mounds. So experiment and enjoy higher yields of quality tomatoes.

#### Harvest

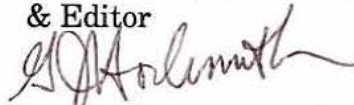
Tomatoes can be picked full red-ripe, or when they are pink and ripened at home.

(Stephens, Vegetarian 93-03)

Prepared by Extension Vegetable Crops Specialists

Dr. D.J. Cantliffe  
Chairman

Dr. G.J. Hochmuth    Dr. D.N. Maynard  
Assoc. Professor    Professor  
& Editor



Dr. S.M. Olson  
Assoc. Professor

Dr. S.A. Sargent    Dr. W.M. Stall  
Assoc. Professor    Professor

Mr. J.M. Stephens  
Professor

Dr. C. S. Vavrina    Dr. J.M. White  
Asst. Professor    Assoc. Professor