Vegetarian 87-11

Contents

I. NOTES OF INTEREST

A. Vegetable Crops Calendar.

B. New Publications.

II. PESTICIDE UPDATE

A. Section 18 for the Use of Fusilade on Celery and Head Lettuce.

B. Nightshade Control Reduction With Paraoquat Due to Copper Fungicide Antagonism.

III. COMMERCIAL VEGETABLES

A. 1987 Leek Variety Trial Results.

B. Use of Tensiometers in Vegetable Production.

IV. VEGETABLE GARDENING

A. Miniature Pumpkins.

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November 16, 1987
I. NOTES OF INTERESTS

A. Vegetable Crops Calendar


November 19, 1987. 9:00 am - 3:30 pm Tenth Annual Conference for Vegetable Technical and Sales Reps. Kendrick Auditorium, Manatee Co. Ext. Office, 1303 17 Street, Palmetto. (Contact Phyllis Gilreath - (813) 722-4524.)

November 30 - December 2, 1987. USDA Vegetable Collaborators' Conference. Omni Hotel, Charleston, SC (Contact Gary Elmstrom.)


B. New Publications.


To request the publications, please contact authors directly.

II. PESTICIDE UPDATE

A. Section 18 for the Use of Fusilade on Celery and Head Lettuce.

The Environmental Protection Agency (EPA) has granted a Section 18 specific exemption to the Florida Department of Agriculture and Consumer Services for the use of fluazifop-p-butyl (Fusilade 2000) on celery and head lettuce to control emerged goosegrass, crabgrass, bermudagrass, foxtails, panicums, and barnyardgrass.

A maximum of 2 ground applications at a maximum rate of 0.188 lb ai/A may be made to celery.

A single ground application of 0.188 lb ai/A may be made to head lettuce.

Applications will not be made within 30 days of harvest. Field flooding may not be made 45-60 days after last application. The exemption expires July 31, 1988. Read and follow all label directions and restrictions.

(Stall: Vegetarian 87-11)

Nightshade Control Reduction With Paraquat Due to Copper Fungicide Antagonism.

For several years, growers in the southwest Florida production area have reported what they believed to be the development of resistance to paraquat by nightshade plants. Directed, shielded paraquat applications did not fully control the nightshade. Those that were not controlled were primarily found along the edge of the plastic mulch. It was first thought that these nightshade plants had not been sprayed or that the coverage of paraquat that they received was lower than what was delivered to the middles due to nozzle arrangements. When these plants were covered with a full rate of paraquat by hand held backpack
sprayers, they were not fully controlled.

At the Gulf Coast Research and Education Center, Bradenton, Dr. Jim Gilreath found that paraquat still controlled nightshade in his experiments.

While wondering if there was truly a resistance established in the southwest Florida area, we observed that the weeds along the sides of the beds were being covered with fungicides, and the copper in the mix was building up on the plant leaves.

Reggie Brown, Collier County Extension Director harvested two large batches of nightshade berries from old fields. We extracted the seed from these fruit and grew several batches of plants out in Gainesville to try to determine if the copper fungicides was inhibiting action of the paraquat.

In the experiments we divided the plants and sprayed no copper fungicides, copper fungicides 3 times in 1 week and 6 times in 2 weeks on the nightshade plants. These plants were divided and paraquat was sprayed at 1/2 rate and full rate on each of the copper treatments.

The results were when no copper was sprayed on the nightshade plants, both the 1/2 and full rate of paraquat killed the plants. When 1 week of copper was sprayed on the plants, the stems collapsed in the upper portion of the plants, but resprouted. Regrowth from the plants treated for 2 weeks with copper was primarily new leaf formation. Very little stem kill was seen.

This experiment shows a definite antagonism between paraquat and copper fungicides when sprayed on the nightshade plants. The more copper on the plants, the less control obtained from paraquat.

We have also noted that younger nightshade plants are controlled to a greater extent than older plants, even with copper sprays.

The experiments are still ongoing to find a mechanism to overcome the antagonism.

(Stall: Vegetarian 87-11)

III. COMMERCIAL VEGETABLES

A. 1987 Leek Variety Trial

Results.

Commercial production of leeks (Allium ampeloprasum, Porrum Group) is small in Florida at the present time. However, it appears that there is potential for more production based on consumer interest. The Packer's recent profile of fresh produce consumers showed that of 30 specialty crops, 38% of the respondents had tried leeks, and another 48% indicated that they had heard of them.

Leeks are considered a major vegetable crop in Europe rather than a specialty crop as they are in the United States. For example, the leek crop in the United Kingdom in 1985 was about 50,000 tons and had an approximate value exceeding $26 million.

Leeks, a long-season crop, are grown for their swollen, but not bulbous, leaf base, the edible portion is the shank which extends from the stem plate to the base of the first aerial leaf. A white shank is required for the market so blanching with soil or straw, for polyethylene-mulched crops, is required. Because of the necessity of blanching, the crop is probably better suited to open-ground culture than to mulched culture. Leeks are not as pungent as onions, and are prized for their delicate flavor. The crop can be direct-seeded, but stand establishment from transplants is probably more desirable. Leeks are very cold tolerant and a succession of plantings should provide a continuous supply from late fall through mid-spring in Central Florida.

-3-
Leek yields ranged from 3,391 lb for 'Carina' to 5,571 lb for 'Varna' per 1000 lb. Yields of 'Kazan', '8240', 'Albana', 'Kilima', and 'Otina' were not statistically different from those of 'Varna', the highest yielding variety. All of the other varieties produced yields that were not significantly different from 'Carina' the lowest yielding variety. 

Weight of individual leeks ranged from 9.4 oz for 'Carina' to 14.9 oz for 'Varna'. Since there was no difference among the varieties in plant stand, total yield was related directly to individual plant weight. 

Plant height, measured from the stem plate to the tip of the longest leaf, ranged from 33.9 in. for 'Electra' to 52.3 in. for 'Varna'. 

Shank length is one of the most important characteristics in leeks. 'Varna' produced 10.5 in. long shanks, which may be too long for many markets. The shortest shanks were produced by 'Conqueror' at 3.2 inches. Most varieties produced shanks that were in the highly acceptable range of 3.5 to 6 in. long. Shank diameter did not vary greatly among the varieties, and ranged from 1.0 to 1.5 in. Most varieties had 1.2 to 1.4 in. diameter shanks. As would be expected from the foregoing, 'Varna' had the highest shank length:diameter ratio. 

Leek leaves typically have an equitant arrangement, i.e., leaves are overlapping in two ranks. When fully expressed, the leaves will be flat in a fan-like arrangement. This should be considered an advantage to facilitate bunching. Some varieties in this trial deviated from the fully equitant arrangement: 'Varna', 'Kazan', '8240', 'Otina', 'Argenta', 'Electra', 'Catalina', 'Armor', and 'Carina' were medium flat whereas 'Varina' and 'Conqueror' were thick flat. 

Observations were made on the tendency of these varieties to bulb. Any deviation from a parallel shank was noted, however slight. Only 'Kilima' showed a marked tendency to bulb; it is uncertain if this would have affected marketability of the leeks. 

Leeks are a long season crop. In this trial, 70 days were required from seeding to transplant and 112 days elapsed between transplanting and initial harvest. Production time would likely be somewhat shorter for spring and fall crops. The yield potential for leeks with two rows per bed on 4.5 ft. centers is high - 53,927 lb for 9680 lb. 

See GCREC Res. Rept. BRA1987-17 for a complete report of these trials.

(Maynard: Vegetarian 87-11) 

B. Use of Tensiometers in Vegetable Production. 

Efficient irrigation practices are very important in reducing farming costs and conserving natural resources. To be efficient irrigation managers, we must be able to predict water needs of our crops, and then apply the water in measured fashion. One tool, mentioned in the October Guidelines, for irrigation scheduling is the tensiometer. 

The tensiometer is a simple instrument that indirectly measures the amount of water in the soil. The instrument consists of a porous, ceramic cup connected to a vacuum gauge through a long, rigid tube (Figure 1). Available at most irrigation supply companies, the tensiometer costs about $30 to $40 depending on length needed.

Installation. Before placing in the field, the tensiometer must be readied by filling the tube with water and allowing it to stand vertically in a bucket of water to soak the ceramic tip. A hand vacuum pump should then be used to remove air bubbles from the tensiometer gauge. The pump, purchased with the tensiometer, is placed over the open end of the tensiometer tube and the
air bubbles are pumped out. After pumping, top-off the water in the tube and replace the cap.

Choose a site in the field that is representative of that field or is representative of the irrigation management unit or zone. Avoid wet or dry areas. Place the tensiometers within the plant canopy in such a manner that it is not shielded from rain or irrigation, nor is it subject to puddling.

Depth of placement is important. Place the tensiometer in the field so that the ceramic cup is in the zone of active roots. For many shallow-rooted vegetables, only one tensiometer with the ceramic cup in the 6 to 12-inch depth is needed. For moderately deep roots, two tensiometers may be needed at each site, one tensiometer placed deeper than the other.

Use a tensiometer soil coring instrument to create a cylindrical hole in which to place the tensiometer. Push the tensiometer into the hole to the correct depth, and lightly tamp the surface soil to seal the instrument. A short period will be required for the correct reading to be established.

How it works. The tensiometer measures "soil moisture tension". As the soil dries out, water is pulled from the tube through the ceramic tip. This creates a tension or vacuum inside the tube which is measured by the vacuum gauge. After a rain or irrigation, water from the soil moves into the tube reducing the vacuum. If the soil becomes too dry, air can move into the system and the instrument will not function.

The units of measurement and the gauge are called centibars and are a measurement of soil moisture tension. Since we are really measuring a vacuum, the units are really negative but the minus sign is usually omitted on the gauge.

Irrigation scheduling. Tensiometers help decide when to irrigate, but they do not tell how much water to apply. Depending on your soil type, different readings will indicate when to irrigate. For sandy soils in Florida, this critical value is in the range of 12 to 20 centibars but on heavier soils the critical value might be 60.

To determine the amount of water to apply, a moisture characteristic curve for your soil type must be used. Your extension agent or farm advisor can help with this problem. The soil moisture curve will help tell you how much water needs to be applied to return the tensiometer to the optimum reading for your soil and crop.

If you have the needed information as described above, the tensiometer can be used to automate irrigations. The vacuum gauge can be fitted with a switch so that the irrigation system can be turned on and off to pre-set gauge readings.

Tensiometer service. Periodic field service will be needed to keep the tensiometer operating properly. This is usually because of air being trapped in the tube. The tube should be checked regularly for air and topped off with more water if more than one-half inch of air accumulates. In dry soils, this might be a weekly operation.

Tensiometers are fragile instruments and should be handled with care. Be sure not to leave filled with water under freezing conditions.

Summary. Tensiometers can be a useful tool with which to schedule irrigations, especially when the system can be automated. Their proper use involves a little initial work to determine the moisture characteristic curve, but there are specialists that can help with this. With proper installation and maintenance, they will continuously measure water potential and help you become an efficient irrigation manager.
IV. VEGETABLE GARDENING

A. Miniature Pumpkins.

Miniature vegetables of all types have been getting more and more popular with both gardeners and consumers over the past few years. One that has become very prominent, especially around Halloween and Thanksgiving, is the miniature pumpkin (mini-pumpkin).

This small, round, flat, orange pumpkin resembles its larger relative, the Jack-O-Lantern pumpkin, but is much smaller, seldom reaching more than 6 ounces in weight, 3 to 4 inches in diameter, and 2 to 3 inches in height.

Some so-called mini-pumpkins are actually baby-sized regular pumpkins. For example, one named 'Little Lantern' weighs 1.9 lbs. and measures 5 inches wide by 4 inches high (Stokes Seed Company), and another named 'Baby Pam' is 5 1/2 inches across (Gurney Seed Company).

While there may be several more varieties of the mini-type, a few of today's more common ones are: 'Munchkin', a 3-4 inch diameter version sold by Moran Seed Company; 'Sweetie-Pie', measuring 3 inches wide, 1 3/4 inches high, and 5 ounces (Stokes Seed Company); 'Bushkin', once sold by Burpee Seed Company but recently removed from sales for further selection work; 'Jack-Be-Little', by Parks Seed Company, advertised as 2 inches high and 3 inches in diameter; and 'Mini-Jack', offered by Gurney Seed Company.

Two common questions are frequently asked by gardeners and consumers alike; what kind of vegetable are these newcomers, pumpkins, gourds or what, and are they edible?

Well, the little orange fruits sure do look like pumpkins, but they are hard and not very palatable, resembling the gaily-colored ornamental apple and pear gourds. Both regular jack-o-lantern type pumpkins and the ornamental gourds belong to the same genus and species, Cucurbita pepo. One is called a pumpkin because of its soft tender edible flesh, while the other is called a gourd because it becomes hardened rather quickly and is generally considered to be inedible. Okay, so now we have the mini-pumpkins, which belong to this same species, which are soft at first but which become hard and unpalatable rather quickly. Still they are true pumpkins, but have the most value as an ornamental gourd. Let's just call them ornamental mini-pumpkins.

They grow on a rather short trailing vine, where they are quite prolific under Florida conditions. Unlike regular pumpkins which produce only a few fruits per plant, there may be a dozen or more mini-pumpkins on the vine. Of course, since these cross readily with other Cucurbita pepo members, it is not uncommon to find a variety of off-type fruits in the planting.

While the mini-pumpkin could be eaten safely when still immature (non-hardened), by the time most consumers purchase them, the fruits are already too tough and hardened to be palatable. For decorative effect, painted or plain, the little mini-pumpkin appears to be around for a long time helping us enjoy Halloween and Thanksgiving even more.

(Stephens: Vegetarian 87-11)