Contents

I. NOTES OF INTEREST
   A. Vegetable Crops Calendar.
   B. New Publications.

II. PESTICIDE UPDATE
   A. Specific Exemptions (Section 18) for Use of Bolero on Celery and Lettuce.
   B. Weed Identification Set from Southern Weed Science Society.
   C. Section 18 for Sodium Chlorate for Preharvest Desiccant on Southern Peas.

III. COMMERCIAL VEGETABLES
   A. Foliar Nutrient Sprays - Help Your Growers Separate Fact From Fiction.
   B. Avoid Herbicide Drift.
   C. Direct Marketing to Tourists.

IV. VEGETABLE GARDENING
   A. Palm Beach County Gardening Survey, 1987 Results.

Note: Anyone is free to use the information in this newsletter. Whenever possible, please give credit to the authors.

The use of trade names in this publication is solely for the purpose of providing information and does not necessarily constitute a recommendation of the product.
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


II. PESTICIDE UPDATE

A. Specific Exemptions (Section 18) for Use of Bolero on Celery and Lettuce.

The Environmental Protection Agency (EPA) has granted specific exemptions, pursuant to Section 18 of the Federal Insecticide, Fungicide and Rodenticide Act, to the Florida Department of Agriculture and Consumer Services for the use of Bolero (thiobencarb) to control purslane and barnyardgrass in celery and lettuce, endive, and escarole grown on organic soils.

Celery. Bolero is to be applied at a maximum rate of 8.0 lb a.i. per acre in a single application at the time of transplanting, prior to weed emergence. A 70-day preharvest interval will be observed. A maximum of 9,100 acres of celery grown on soils with greater than 20% organic matter may be treated by ground equipment using a minimum of 20 gallons of water per acre.

Lettuce, Endive, Escarole. A maximum of 14,000 acres of lettuce, endive, and escarole grown on soils with greater than 20% organic matter may be treated. A single ground application at a rate of 6.0 lbs a.i. per acre in 60 to 80 gallons of water per acre at the time of direct seeding or transplanting and prior to weed emergence is authorized. A 45-day p.h.i. will be observed. Both specific exemptions expire on August 31, 1988.

(Ball: Vegetarian, 85-10)

B. Weed Identification Set From Southern Weed Science Society.

The Southern Weed Science Society has published two new weed identification guides. These are in looseleaf form with colored pictures of the different growth stages of each weed. On the reverse side of each sheet is information on biology,
ecology and geographic distributions of the species. Two sets of 50 sheets each are presently available. The sets are designed for use in the southern states. A copy of the order blank for the sets is below.

(Stall: Vegetarian, 87-10)

C. Section 18 for Sodium Chlorate for Preharvest Desiccant on Southern Peas.

A section 18 specific exemption has been granted for the use of Defol 6 sodium chlorate on southern peas as a preharvest desiccant. A single aerial or ground application may be made on 800 acres at a maximum rate of 6 lbs a.i. per acre.

A preharvest interval of seven days must be observed and no foliage or fodder from the treated fields can be used as livestock feed as hay or graze. The specific exemption expires December 31, 1987. A supplemental label must be in the possession of the applicator before application is made.

(Stall: Vegetarian, 87-10)
III. COMMERICAL VEGETABLES

A. Foliar Nutrient Sprays—Help Your Growers Separate Fact From Fiction.

Recently, we have been receiving increasing amounts of questions concerning foliar fertilization. Most questions revolve around selecting the best foliar fertilizer material and does not address the REAL QUESTION of whether or not the sprays are needed. As extension personnel, we must help the grower determine the applicability of foliar nutrition and help him separate fact from fiction.

Vegetable plant leaves, in the first place, are not well adapted for absorbing nutrients because of the presence of the waxy cuticle. In fact, it is almost impossible to find reports in the literature that conclusively showed that the plants benefitted from the sprays rather than from the nutrients washed from the leaves onto the ground with subsequent root uptake.

The application of macronutrients such as nitrogen, phosphorus, and potassium to plant leaves is extremely questionable. A glance through the literature and even previous Vegetarian articles dating back through the years should help put this idea as a general fertilizer practice to rest. Plants cannot absorb enough N, P, or K solely through the leaves to supply the crop need even under a deficiency.

Especially in Florida, the practice of N, P, and K foliar fertilization should be questioned. Our vegetable soils are, for the most part, loaded with phosphorus, and the large amounts of fertilizer added to the soil makes one wonder how the tiny bit of N, P, or K coming from a foliar fertilizer can significantly add to that which comes from the soil-applied fertilizer. A quick calculation will show that the amount of foliar-derived macronutrients is negligible compared to soil derived fertility. So, why spray these expensive sources of N, P, or K on plants?

The bottom line is whether or not foliar N, P, or K actually increases yields. Some foliar fertilizer is sold on the premise that "it supplements a sound soil-applied fertilizer program." If the soil directed program is sound, then it needs no "supplementing."

Foliar nutrients are seen by some to be a miracle cure for many plant problems, even those unrelated to nutrition. They are promoted to reduce blossom loss, help tuber set on potatoes, reduce drought stress, help frost damaged plants, increase plant resistance to insects and diseases, etc., etc., etc. The first thing some desire to do after a frost or hail is to spray foliar nutrients on the plant. This supposedly gives the plant a quick "pick-me-up" snack. Like many well-fed people, these plants don't need more fertilizer but rather warmer temperatures. The likelihood of getting enough beneficial nutrition on plants that have lost most of their foliage to hail or frost is miniscule.

Micronutrient foliar fertilization to correct a diagnosed deficiency makes more sense than foliar application of N, P, or K. However, the problem is that most commercial foliar sprays contain several micronutrients, if not all of them. Therefore, it is impossible to determine to which one to ascribe the positive response, if in fact there was one. The tendency is to blast away with everything.

In the area of micronutrients, we must deal with a lot of misconceptions. As with macronutrients, we must determine that there is a REAL NEED for micronutrients, and then we must determine if foliar application is the best way to apply them. In situations of high soil pH where soil micronutrients might be made unavailable, a benefit might result from...
foliar-applied micronutrients. An example is the alkaline rockland of Dade county where micronutrients can be tied up in the soil.

With micronutrients, such small amounts are needed that they might be effectively applied foliarly; IF THEY ARE NEEDED. The problem in Florida is that much of our vegetable land is loaded with micronutrients from "shot-gun" micronutrient packages added with the dry fertilizer and from the copper, manganese, and zinc-containing fungicides and bactericides used for disease control. In fact, tens of pounds of some elemental micronutrients are added annually to an acre through the fungicide program.

Therefore, if a pest control program includes these micronutrient-containing materials, and the soil is loaded up, why spray on more to provide a snack? In all likelihood we are leading ourselves down a dangerous path of micronutrient buildup in the soil and resulting plant toxicity and reduced yields. If a micronutrient problem has been diagnosed, treat it with only that nutrient and not a material with all nutrients in a shot-gun approach. It will be cheaper in the short-run and lead to fewer problems in the long-run.

When applying foliar micronutrients, remember that, in general, they do not translocate easily from older leaves to newer leaves. Therefore, one spray will probably not do the job. This means that multiple sprays, directed at the young leaves will be needed (no airplanes). Rates in each spray must be according to labeled recommendations for the product.

Because of this technical difficulty in achieving good coverage, it might be beneficial to search for alternatives to foliar application such as banding micronutrients in the soil. Remember that it is very easy to cause a micronutrient toxicity with foliar sprays in the hopes of clearing up a deficiency.

In summary, foliar application of nutrients is not warranted as a general, shot-gun approach to fertilization. Many years of research and demonstration show that it is more effective and more economical to follow a sound soil-applied program based on soil testing principles. In those few cases where micronutrient application to foliage is warranted to correct a diagnosed deficiency, be sure to:

1. Identify a REAL need i.e. DEFICIENCY.
2. Make sure a yield response (increase) will result. Don't spray to make plants greener. This is the real "acid test" for foliar nutrition and the one which most programs fail to pass.
3. Use only the nutrient that is in deficient supply. Most liquid fertilizer formulators have these individual ingredients. Don't shot-gun.
4. Apply at recommended rates and times to get the maximum response.
5. Search for a program that deals with the basic problem e.g. soil pH, cold soils. Don't keep treating the symptoms with sprays when you can find a more practical solution to the problem.
6. Base all decisions on fact and don't let fiction get in the way.

(Hochmuth:Vegetarian, 87-10)

B. Avoid Herbicide Drift

Reducing pesticide drift, specifically herbicide drift, is a persistent problem confronting applicators. The problem is not a simple one, but there are measures that can be used to reduce drift. The big 3 factors that affect drift are: wind velocity, spray droplet size and nozzle height.

Wind velocity: To best confine the materials to the target area, the wind velocity should be zero. Obviously, in most cases in Florida, this
is impossible. There have been documented cases where herbicides have drifted more than 22 miles when applied under high wind conditions. The hazards associated with this kind of drift is sobering when viewed in the liability standpoint.

Droplet or particle droplets averaging 400 microns (2/100 inch) would drift off target about 8 feet when sprayed from 10 ft in height as from an aircraft. Fine droplets of 100 microns would drift 48 feet under the same conditions. Very fine droplets (10-20 microns) can remain airborne indefinitely.

Controlling the atomization (fine particle size) offers the best potential for reducing airborne drift. Increasing the droplet size results in sprays that readily fall and allow application in non-ideal weather conditions. Unfortunately, coarse sprays may not give the best coverage, especially in postemergent applications. To increase coverage with coarser sprays, an increase in gallonage must insue. This may be accomplished by increasing nozzle size and/or increasing pressure. For herbicide applications, use either flat fan or flood-jet nozzles. Hollow cone-type nozzles produce fine sprays.

The pressure must be adjusted to the nozzle size. The higher the pressure, the greater potential for atomization. This would result in more drift. Conversely, if the pressure is less than that specified for the nozzles, uneven distribution of the spray may result.

An obvious method for reducing drift is by shielding the application areas. This is done routinely in directed applications between mulched beds. Even with shielded applications, however, if the nozzle and pressures are not matched, atomization of some of the spray occurs and damage has been done to crop plants from the short drift of the fine particle size or atomized spray.

Height of Nozzles: Another important consideration in reducing drift is the height of the nozzles. Nozzles positioned too high will disperse the spray over a wider area and increase the potential for drift. Lowering the nozzles will reduce the width each nozzle covers. By reducing the width of coverage for each nozzle, an increase in gallonage will be gained by keeping the nozzle and pressure constant. For broadcast applications, more nozzles must be used to obtain proper coverage. The applicator must decide on a desired swath width by striking a balance between pressure, nozzle size and height.

Physical, chemical, and formulations of herbicides should not be ignored in drift reduction. The obvious example here are forms of phenoxy herbicides. The ester forms are more prone to evaporate from the droplets in the air or on plants and move than the amino-salt formulations. Other herbicides with low vapor pressure potentials may have to be specially handled or not applied at all under certain conditions. When labeled, the granular formulations of certain herbicides may be the choice over EC formulations to reduce drift of spray particles.

In most cases, with planning and calibration, drift can be avoided. Measures to avoid this problem should always be first in the applicators mind.

(Stall: Vegetarian, 87-10)

C. Direct Marketing to Tourists

Tourism and agriculture are Florida's two largest industries. Direct marketing of farm products directly link these two major forces in the state's economy.

Direct marketing includes roadside or on-farm markets, U-pick operations, and farmer's markets. There are opportunities to increase direct marketing in Florida. A good assort-
ment of high quality, fairly priced vegetables is essential to the success of any direct-marketing venture.

A survey conducted in Michigan indicated that there are a number of other factors that tourists consider to be desirable in direct-marketing operations:

<table>
<thead>
<tr>
<th>Picnic Facilities</th>
<th>Opportunities for Children</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walking Trails</td>
<td>Programs</td>
</tr>
<tr>
<td>Desserts</td>
<td>Educational Signs/Exhibits</td>
</tr>
<tr>
<td>Newsletters</td>
<td>Lunch</td>
</tr>
<tr>
<td>Announcements</td>
<td>Special Events/Contests/Festivals</td>
</tr>
<tr>
<td>Mailing Lists</td>
<td>Good Parking</td>
</tr>
<tr>
<td>Calendar of Events</td>
<td>Gift Certificates</td>
</tr>
<tr>
<td>Friendly Employees</td>
<td>T-Shirts</td>
</tr>
<tr>
<td>Pleasant Surroundings</td>
<td>Clear Directions</td>
</tr>
<tr>
<td>Clean Restroom Facilities</td>
<td></td>
</tr>
</tbody>
</table>

It probably is not possible for a single operation to have all of these attributes, but they should be considered for planning purposes.

Vegetables, in order of importance, that were effective in drawing Michigan tourists to direct-marketing facilities were sweet corn, strawberry, lettuce, muskmelon, tomato, potato, carrot, cucumber, broccoli, and cauliflower. Some of these vegetables would be important to Florida too; others that could be added here are watermelon, okra, southern pea, pepper, greens, and squash. In Manatee County, rhubarb attracts northern visitors to some operations.

Farm products, other than vegetables, were also important in attracting tourists to direct-marketing operations. Some that could fit into Florida operations are eggs, milk, jams, jellies, preserves, fruit juice, honey, smoked fish, blueberries, and peaches. Citrus would be an obvious addition to the list for us.

Another important part of the Michigan survey was to determine how customers learned of the availability of farm products. This is how they responded:

- Informal/word-of-mouth: 51%
- Roadside sign: 21%
- Newspaper: 10%
- Travel Information Center: 3%
- Radio, Magazine, TV: each 1%
- Chamber of Commerce: less than 1%

Even though word of mouth was a very important means of communication in this study, advertising to make customers aware of produce availability should not be overlooked.

For more information on roadside marketing, see VC-33.

References


(Maynard, Vegetarian, 87-10)

IV. VEGETABLE GARDENING

A. Palm Beach County Survey, 1987 Results.

Gene Joyner, Extension Horticulturist in Palm Beach County has surveyed gardeners attending his vegetable classes in the Fall of 1987, with some interesting results. Since Gene doesn't mind, I'm going to condense his survey reports and share some of the highlights with our readers.

There were 60 responses out of 200 attending classes.
1. Where living?
   Urban 40; Rural 19
   My comments: Shows that term "Urban Horticulture" is often too exclusive and leaves out the rural areas of our counties.

2. First time garden?
   Yes 8; No 45
   My comments: This is usually the case, but experience may have been in another state.

3. Average size of garden:
   360 sq. ft.
   My comments: Right at the average size as found by Gallup Poll.

4. Pre-plant nematode control (plan):
   Yes 32; No 16
   My comments: Shows importance of this pest; many plan, but fewer do.

5. Favorite vegetable grown:
   tomato, beans, radish, broccoli, peppers, squash, cauliflower, herbs, eggplant, cucumbers, peas, sweet corn, lettuce, onion, parsley, cabbage, and collards (not quite in that order).
   My comments: Again, the Gallup Poll would concur.

6. Irrigation used?
   Sprinkler 29; Hand 28.
   My comments: The easy way is to use the lawn sprinkler.

7. Do you use Extension's gardening information?
   Yes 44; No 3.
   My comments: Keep in mind this meeting was one in a series.

8. How are vegetables used?
   Fresh 42; Other 10
   My comments: Need some work on preservation, huh?

9. Money spent on gardening:
   Lawn $245; Fruits $39; Shrubs $93; Flowers $42; Vegetables $48
   My comments: These figures for vegetables very close to Gallup Poll results.

10. What prompted you to participate in Extension's home horticulture programs?

   a. Mass media announcements 47
   b. Recommendations by friends 14
   c. Garden club or other organization announcements 5
   d. Referral by garden stores, nurserymen, etc. 6
   My comments: As expected, the newspaper, radio, and TV are best ways to round up a crowd.

   (Stephens: Vegetarian, 87-10)

Prepared by Extension Vegetable Crops Specialists

Dr. D.J. Cantliffe  Dr. D.D. Gull
Chairman  Assoc. Professor

Dr. G.J. Hochmuth  Dr. D.N. Maynard
Asst. Professor  Professor

Dr. W.M. Stall  Mr. J.M. Stephens
Professor  Professor