# Vegetarian Newsletter

## *A Vegetable Crops Extension Publication*

University of Florida
Institute of Food and Agricultural Sciences
Cooperative Extension Service

## Vegetarian 00-03

## March 2000

Adobe Acrobat .pdf

(Back to Index Page)

***VEGETABLE CROPS CALENDAR***

***COMMERCIAL VEGETABLES***

- ***Southwest Florida Pest and Disease Hotline***
- ***Improving Soil Enzyme Activity with Organic Amendments***
- ***Fall 1999 Tomato Variety Evaluation***

**(Note: Anyone is free to use the information in this newsletter. Whenever possible, please give credit to the authors. The purpose of trade names in this publication is solely for the purpose of providing information and does not necessarily constitute a recommendation of the product.)**

# Vegetable Crops Calendar

***Small Farm Conference & Trade Show 2000***, Free and Open to the Public, April 1, 2000, 8:30am - 3:30pm at the Volusia County Fairgrounds, Deland, Florida. Contact Richard Tyson at 407-665-5554 for more information.

***Master Composter Program***, March 28-May 3, ELC Wabasso/Indian River County. Contact Doug Kutz 407-633-1702 in Brevard County or Dan Culbert 561-770-5030 in Indian River County for more information.

***Vegetable Agents 2000 In-Service Training***, April 24-26, Indian River Research & Education Center. Contact Betsy Lamb at SunCom 240-3922 for more information.

# Commercial Vegetables

## *Southwest Florida Pest and Disease Hotline*

ATT sponsors the National Association of County Agriculture Agents Communications Awards program. Agriculture agents are asked to submit samples of their work to be shared with other across the nation. I was recently privileged to review one of the entries in this year's competition that will be of interest to vegetable growers in Florida. **Hendry County Extension Agent Gene McAvoy** produces a newsletter for growers and makes it available via e-mail and the Internet. Readers can view current and past issues on Gene's website Published bi-weekly by the **Hendry County Extension Office** since 1998, 27 issues have been produced to date. The concerns of the SW Florida Vegetable Advisory Committee showed a need for a timely updates on pest and disease problems. This newsletter provides growers and other industry personnel with dependable and timely information on the occurrence, incidence, trends, and severity of various vegetable pests and diseases occurring in SW Florida. It is a

collaborative effort from some 20-30 growers and scouts, the UF/IFAS SWFREC Diagnostic Clinic in Immokalee, IFAS and industry vegetable specialists, and Gene's personal field observations. Included are pertinent weather information, IPM tips and information, updates on pest control products and regulatory issues. A typical edition varies between 6 and 8 pages.

The SW Florida Pest and Disease Hotline has been well received by the industry and local growers. It is currently sent to 697 individuals by e-mail (190), fax (129), and surface mail (378). The majority of the subscribers are located in SW Florida but it also goes to research and industry subscribers through out the south east and mid Atlantic states. There are even a handful of subscribers in places as far as Canada, Jamaica, California and Hawaii.

The Hotline received support from contributions from 22 vegetable industry sponsors in 1999. It has been critically acclaimed by area growers and others in the vegetable industry. Comments from readers include:

> "Accurate and current information is the best defense against insects and disease."
>
> "I read it and have all our supervisors read it."
>
> "Something like this has been needed for a long time."
>
> "It gets passed around to everyone in the office the day it comes in."
>
> "The hotline helps me see the big picture and not just what's happening in my fields."

It has also made it on UF/IFAS Florida Pest Alert, the USDA IPM Newsletters website , and has also been cited in the Illinois Fruit and Vegetable News as a useful reference and is regularly quoted in local and regional trade journals. Great job Gene - and good luck with the NACAA competition!

***(Dan Culbert, Indian River County Ext. Dir., Vegetarian 00-03)***

## *Improving Soil Enzyme Activity with Organic Amendments*

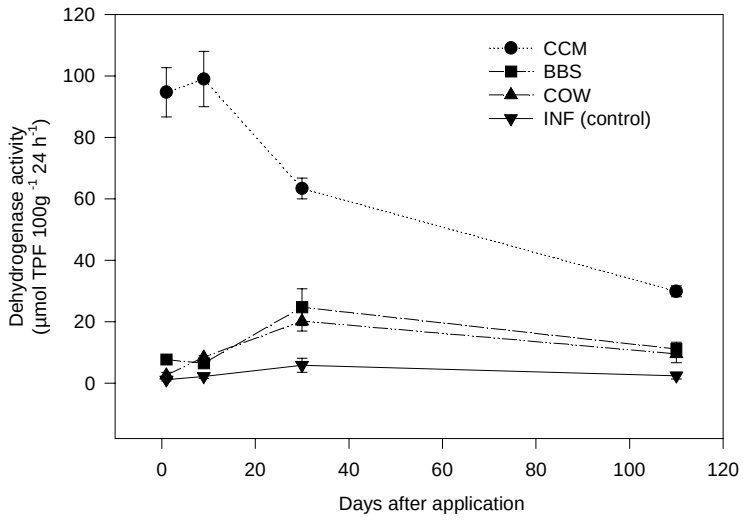
Soil enzyme activity is considered to be an integral index of soil quality or 'health' in terms of sustainable land management and crop production. Soil enzyme activities are generally stimulated in land applications of organic soil amendments. For example, land application of municipal solid waste, animal manures and crop residues significantly increased the activity of a wide range of soil enzymes. Although these organic amendments contain enzymes, **the**

**increase in activity in soils amended with organic residues likely is due to the stimulation of microbial activity rather than to the direct addition of enzymes from the organic sources.**

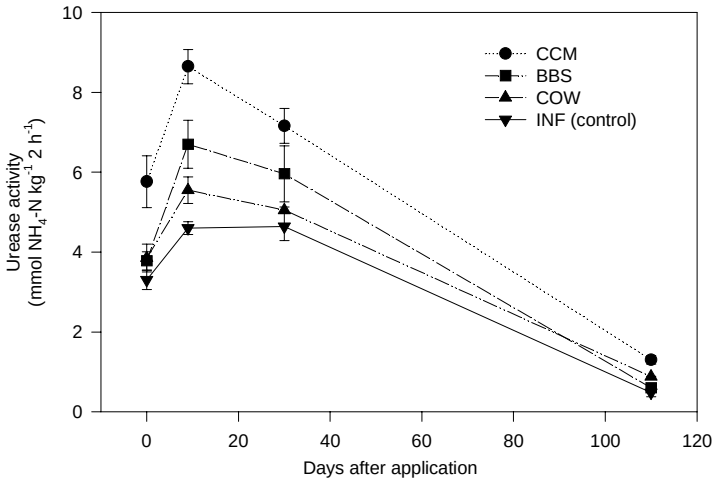
Soil hydrolases, which include dehydrogenase, urease, phosphatase, and glucosidase are the most important soil enzymes from the standard point of evaluating soil quality and crop production. Dehydrogenase catalyzes dehydrogenation or oxidation of soil organic matter and its activity is considered to be an important microbial indicator of soil quality. Urease hydrolyzes organic nitrogen compounds and produce ammonia. Phosphatases catalyze the hydrolysis of organic phosphorus compounds to phosphate which can be taken up by plants. Glucosidases or glycoside hydrolases are enzymes that catalyze the hydrolysis of different glycosides. The hydrolysis products of β–glucosidase are believed to be important energy sources for microorganisms in soils.

In order to examine effects of soil amendments on soil enzyme activities and their seasonal variation, recently, we conducted a field experiment and laboratory evaluation. Three organic amendments used in this experiment were: Co-compost (CCM), clean organic waste compost (COW), and composted biosolids (BBS). We measured soil hydrolase activities (dehydrogenase, urease, pyrophohphatase, β-glucosidase). Results showed that the four enzyme activities were positively affected by addition of these three composts to soils (See figures 1, 2, 3, & 4 below). The CCM treatment significantly increased all enzyme activities except pyrophosphatase. The four enzyme activities amended with BBS and COW were stimulated to modest levels, and these decayed slowly during the 110 d period. In plots treated with inorganic fertilizer the lowest soil enzyme activities except that of pyrophosphatase were stimulated. The levels of most of the stimulated enzyme activities resulting from addition of organic residues began to decline about one month after soil amendment. However, β-glucosidase in CCM amended soil remained 5-7 times higher over the entire 110d experimental period than in other treatments.

Figure 1



## Figure 2




## Figure 3

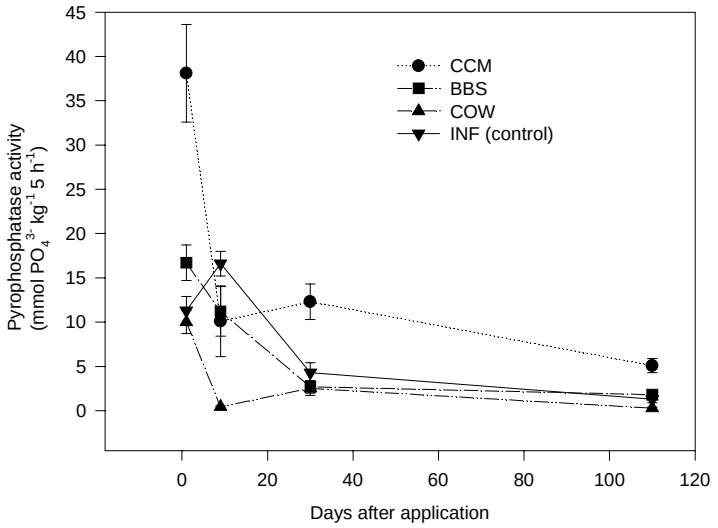
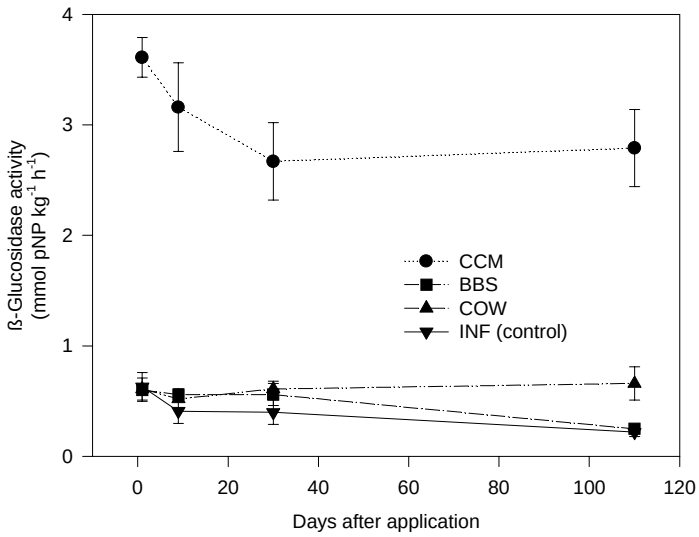


Figure 4




***(Li, Vegetarian 03-00)***

# *Fall 1999 Tomato Variety Evaluation*

Twenty-eight fresh market tomato varieties or advanced experimental hybrids were evaluated in a replicated yield trial at the Gulf Coast Research and Education Center-Bradenton in west-central Florida in the fall 1999 season.

## *Production Practices*

Seeds were sown on 12-14 July into planter flats (1.5 x 1.5 x 2.5-inch cells) containing a commercial mix of vermiculite, Canadian sphagnum peat and poly beads and then covered with a layer of coarse vermiculite and germinated in a greenhouse. Plants were conditioned before transplanting by limiting water and nutrients in the final phase of production.

The EauGallie fine sand was prepared in early August. Beds were formed and fumigated with methylbromide:chloropicrin, 67:33 at 2.3 lb/100 lbf. Banded fertilizer was applied in shallow grooves on the bed shoulders at 2.34-0-3.25 lb N-$P_2O_5$-$K_2O$/100 lbf after the beds were pressed and before the white on black polyethylene mulch was applied. The total fertilizer applied was equivalent to

203-0-283 lb N-$P_2O_5$-$K_2O$/A. The final beds were 32 in. wide and 8 in. high, and were spaced on 5 ft centers with six beds between seepage irrigation/drainage ditches which were on 41 ft centers.

Transplants were set in the field on 23 August and spaced 24 in. apart in single rows down the center of each bed. Transplants were immediately drenched with water containing the recommended rate of imidacloprid for silverleaf whitefly control. Four replications of 10 plants per entry were arranged in a randomized complete block design. Plants were lightly pruned, staked and tied.

Plants were scouted for pests throughout the season. Lepidopterous larvae, leafminers and silverleaf whitefly were the primary insects found. Bacillus thuringiensis, methomyl, spinosad, buprofezin, endosulfan, and pyriproxyfen were used according to label instructions to control insect pest populations during the season. A preventative spray program using maneb, copper hydroxide, and chlorothalonil was followed for control of plant pathogens. Tomato yellow leaf curl virus affected plants were removed and disposed of early in the season, but were allowed to remain after the second tie.

Fruit were harvested at or beyond the mature-green stage on 17 and 30 November and 14 December. Tomatoes were graded as cull or marketable by U.S. Standards for Grades of Fresh Tomatoes and marketable fruit were sized by machine. Both cull and marketable fruit were counted and weighed.

## Results

Seasonal yields from three harvests ranged from 1294 cartons/acre for SBT 5011 to 2648 cartons/acre for Fla. 7885 (Table 1). Nine other entries had similar yields to those of Fla. 7885. All entries produced yields exceeding the 1106 cartons/acre state average yield for fall 1997-98 and exceeded yields obtained at this location in recent fall seasons.

Yields of **extra large fruit** varied from 629 cartons/acre for SBT 5011 to 1835 cartons/acre for Fla. 7816. Eight other entries had extra large fruit yields similar to those of Fla. 7816. **Large fruit** yields of fresh market types ranged from 405 cartons/acre for ‘BHN 190' to 872 cartons/acre for HA-3048. **Average fruit** weight for fresh market types varied from 5.4 oz for HA-3017 A to 6.9 oz for Fla. 7816. **Cull fruit** by weight ranged from a low of 12% for Fla. 7816 to 32% for HA-3044. The incidence of plants infected with tomato yellow leaf curl virus varied from 0 for HA-3017 B, HA-3048, ‘Sanibel,’ HA-3017 A, and HA-3044 to 40% for SBT 6682.

Overall, **total marketable yields** surpassed those obtained at this location in recent fall seasons. In fall 1999, yields ranged from about 1300 cartons/acre to more than 2600 cartons/acre. The proportion of extra-large fruit varied from less than 50% to over 75% for the entire season.

The University of Florida experimental hybrids Fla. 7885, Fla. 7921, Fla. 7816; and ‘BHN 273,’ and HA 3017 B were outstanding performers in the fall 1999 replicated trial.

Those readers needing more information can request a detailed report from the author at DNMA@gnv.ifas.ufl.edu.

**Table 1. Total marketable yields, average marketable fruit weight, and cull percentages for fresh market tomato entries in spring 1999. (Harvest Dates: 17 and 30 November, 14 December, 1999).**

| | | Total Harvest | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Entry | Source | Total | X-Large | Large | Medium | Culls (%)[y] | Avg Fruit Wt (oz) | TYLCV[x] (%) |
| | | ----------(cartons/A)[z]---------- | | | | | | |
| Fla 7885 | GCREC | 2648 a[w] | 1661 a-c | 789 ab | 198 b-e | 6.2 d-f | 17 e-i | 5 ab |
| Fla 7921 | GCREC | 2445 ab | 1704 ab | 596 b-f | 144 b-g | 6.3 de | 17 e-i | 3 b |
| BHN 273 | BHN Research | 2422 a-c | 1567 a-e | 631 b-e | 224 ab | 6.3 c-e | 17 e-i | 15 ab |
| Fla 7816 | GCREC | 2419 a-c | 1835 a | 481 c-f | 103 fg | 6.9 a | 12 i | 5 ab |
| HA-3017B | Hazera | 2390 a-d | 1498 a-e | 698 a-c | 195 b-f | 6.3 c-e | 18 d-I | 0 b |
| Equinox | Agrisales | 2338 a-c | 1617 a-d | 593 b-f | 128 c-g | 6.4 c-e | 14 g-i | 15 ab |
| Solar Set | Asgrow | 2308 a-d | 1708 ab | 480 c-f | 119 c-g | 6.6 a-c | 14 hi | 3 b |
| HA-3048 | Hazera | 2190 a-e | 1029 f-j | 872 a | 289 a | 5.4 j | 22 b-h | 0 b |
| Sanibel | Petoseed | 2164 a-f | 1479 a-e | 577 c-f | 108 e-g | 6.4 d-e | 16 f-i | 0 b |
| Florida 47 | Asgrow | 2161 a-g | 1537 a-e | 526 c-f | 98 g | 6.5 c-d | 14 g-i | 13 ab |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Sun Chaser | Petoseed | 2072 b-h | 1228 d-h | 640 b-e | 203 b-d | 5.8 g-j | 18 d-i | 25 ab |
| BHN 190 | BHN Research | 2052 b-h | 1541 a-e | 405 f | 105 fg | 6.8 ab | 20 c-i | 5 ab |
| Agriset 761 | Agrisales | 1992 b-i | 1292 c-g | 567 c-f | 133 c-g | 6.1 d-g | 19 d-i | 3 b |
| Florida 91 | Asgrow | 1977 b-i | 1349 b-f | 451 d-f | 132 c-g | 6.5 b-d | 19 d-i | 13 ab |
| RFT 6153 | Novartis | 1936 b-i | 1211 e-i | 598 b-f | 128 c-g | 6.1 d-g | 17 e-i | 3 b |
| Sunbeam | Asgrow | 1934 b-i | 1393 b-f | 429 ef | 112 d-g | 6.5 b-d | 20 c-i | 23 ab |
| BHN 329 | BHN Research | 1906 c-i | 1289 c-g | 494 c-f | 123 c-g | 6.3 c-e | 19 c-i | 23 ab |
| BHN 153 | BHN Research | 1883 d-j | 1255 d-h | 521 c-f | 107 e-g | 6.1 d-g | 23 b-g | 10 b |
| HA-3017A | Hazera | 1763 e-k | 887 h-k | 666 b-d | 210 a-c | 5.4 j | 26 a-d | 15 ab |
| RFT 8332 | Novartis | 1744 e-k | 1070 f-j | 541 c-f | 132 c-g | 6.0 e-g | 23 b-g | 0 b |
| Hybrid 882 | Petoseed | 1654 f-k | - | - | - | 2.8 l | 29 ab | 23 ab |
| ASX 9100 | Agrisales | 1644 g-k | 978 g-k | 514 c-f | 153 b-g | 5.8 f-j | 24 a-f | 30 ab |
| Solimar | Asgrow | 1634 h-k | 968 g-k | 503 c-f | 163 b-g | 6.0 e-h | 20 c-l | 15 ab |
| SBT 6682 | Sunseeds | 1505 i-k | 847 i-k | 511 c-f | 146 b-g | 5.8 f-i | 16 f-i | 40 ab |
| HA-3044 | Hazera | 1492 i-k | 835 i-k | 474 d-f | 184 b-g | 5.6 ij | 32 a | 0 b |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| SBT 5659 | Sunseeds | 1383 jk | 729 jk | 445 d-f | 209 a-c | 5.6 h-j | 28 a-c | 23 ab |
| Flavor More 223 2222223 | Harris Moran | 1368 k | - | - | - | 3.2 k | 31 ab | 28 ab |
| SBT 5011 | Sunseeds | 1294 k | 629 k | 473 d-f | 193 b-f | 5.5 ij | 26 a-e | 30 b |

[z] Carton = 25 lbs. Acre = 8712 lbf. Grading belt hole sizes: X-Large = no belt, greater than 2.75": Large = 2.75"; Medium = 2.5"; and Cull = 2.25".
[y] By weight.
[x] Tomato yellow leaf curl virus.
[w] Mean separation in columns by Duncan's multiple range test, 5% level.

***(Maynard, Vegetarian 00-03)***

# *Dow Showcases New Telone Application Rig*

Dow Chemical Company recently unveiled a new application rig for broadcasting Telone with demonstrations in Gainesville, Palmetto, and Immokalee. The rig itself is the brainchild of John Mirusso, who fabricated specially designed colters to place the Telone a full 12 inches below the ground (Fig. 1a and 1b). This depth actually places the fumigant where no fumigant has gone before! Additionally, this depth of placement so adequately seals the Telone and chloropicrin in, that it cannot be detected by the human nose.

The new rig uses a series of 30-inch vertical colters placed one foot apart to knife-in the Telone C-35 while simultaneously broadcasting Tillam. The equipment offers **several advantages**, including:

- The fumigant is knifed-in to a depth of 12 inches and stays on target, minimizing potential exposure and maximizing effectiveness. The broadcast nature of the application is helpful in several ways. First, as a one-person operation, it eliminates many of the worker protection concerns by utilizing a single tractor operator for application. Bedding and other associated operations are done after the REI has elapsed, alleviating the need for multiple people in the field and greatly reducing potential exposure to pesticides.

- The full broadcast application, including ditches and drive middles, can all but eliminate mid-season intrusion of diseases and nematodes, since these source areas will have been treated too. Most growers in attendance felt the broadcast application would be too expensive. However, Dow AgroSciences claims the cost is in line with the current price of methyl bromide applied in the bed.

- The use of colters enables the rig to cut through string and plastic that often impede operations.

- The rig can be constructed in any width required depending on grower preference. The components are constructed in one-foot increments at a cost of approximately $1,150 per foot.

- Lastly, fumigation can be done well in advance of planting, eliminating potential bottlenecks in the field from multiple tasks.

Although the rig is designed for a once-over application including the Telone and Tillam, the consensus among the growers was that the Tillam might best be applied toward the end of the Telone re-entry period to help aerate the soil and provide the longest-lasting weed control. It was also believed that a light disc would provide for a better incorporation of the Tillam than the S-tines on the rig

(Fig. 2). Tillam is best used in conjunction with mechanical transplanting equipment. If plants are to be set by hand, workers must be provided with waterproof, chemical-resistant gloves (Category A). The REI on Tillam is 12 hours. However, according to Zeneca's Tillam label, tomatoes should not be transplanted before 21 days.

Telone C 35 has surfaced as the best, readily available alternative to methyl bromide at the present time. The 35% chloropicrin is included in the mixture for additional disease control. Methyl bromide users are no strangers to chloropicrin. It should be noted, however, that 35% chloropicrin will require more time (approximately 21 days) to vacate the soil than growers remember with the 2% product found in the old methyl bromide.

The rig impressed those in attendance and persuaded many attendees to think more seriously about the coming loss of methyl bromide. Although projections are for a total phase out of methyl bromide by 2005, most growers feel it will be almost impossible to obtain by fall 2001. For more information on Telone, contact Jerry Nance, Telone Specialist, Dow AgroSciences (863-293-4224); for specification on the application rig, contact John Mirusso (561-251-5187).

**Figure 1a. Telone/Tillam application rig, featuring 30" colters.**

**Figure 1b. Telone/Tillam application rig, featuring 30" colters.**

**Figure 2. S-tines for Tillam incorporation.**

***(McAvoy, Hendry County Extension, and Vavrina, Vegetarian 00-03)***

# Vegetable Gardening

## *Kinds and Varieties of Southern Pea, Vigna unguiculata*

There is a lot of confusion surrounding the classification of types of southern peas. Even the name of the crop has several synonyms. The preferred name is **southern pea.** Other common names are: cowpea, edible cowpea, field pea, black-eye, and table pea.

There are kinds and types of southern pea, and within them, numerous named varieties (cultivars) as well as an un-known number of named and unnamed strains. People save their own seeds, then rename them, and pass them on to others as something new. The true varietal identity soon becomes lost within a maze of new local nomenclature.

Several years ago, horticulturists attempted to classify some fifty or so of the most common varieties and strains of the day. Each one was shown to be a little different from the others in horticultural characteristics, and not merely in name. Since that time, many new varieties have been added, primarily through the efforts of plant breeders, particularly in the south.

**Groups.** The following groupings are suggested as a way to classify these various kinds and varieties of southern pea. Gardeners should be able to fit their own seed-stock of question into one of these groups.

With the exception of the Purple Hull Group, classification is based primarily on a) seed and seed-eye coloring; b) the spacing of seed within the pod; and c) plant growth habit. Our groupings are based on a) and b), but not c). Varieties with seeds that are so closely spaced that the seed ends are pressed against each other are referred to as **Crowders**.

**Seed color** varies, but is either concentrated around the seed-eye (hilum) or is general all over the seed coat. Any amount of seed color causes darkening of the "pot liquor" and the cooked seeds. Those varieties having no seed color are called **cream peas**. Most of the creams are loosely spaced, but some new cream crowder varieties are now available.

The **Purple Hull** group includes those with any amount of purple on the pods, although they might fit into other groups as well.

Obviously, some of these names are synonymous with names in other groups.

**1. Blackeye group**. Seeds that are usually not crowded in the pods are white with dark black eyes. Examples: Bettergro Blackeye, Blackeye Pea, Blackeye California, California Blackeye No.5, Early Blackeye, Ramshorn Blackeye, Royal Blackeye, and Queen Anne.

**2. Blackeye Crowder group**. Similar to regular blackeye except seeds are crowded in the pods. Examples: Alacrowder, Blackeye Crowder, and Blackeye White Crowder.

**3. Colored-eye group**. Non-cream type with seed-eyes that have coloring other than black, usually, brown, tan, or pink. Pods usually not crowded. Examples: Big Boy, Alabunch, Alalong (Longhorn), Todd , and Six-week Browneye.

**4. Colored-eye Crowder group**. Same as 3, except seeds are crowded. Examples: Pinkeye Crowder, Browneye Crowder, White Pinkeye, Calico (Hereford), Tennessee White Crowder, and Alabrowneye.

**5. Black Crowder group**. The seeds are solid black and crowded. Examples: Black Crowder and Bisbee Black.

**6. Brown Crowder group**. Most crowders will fit into this group, and most all brown seeded types fit here. Some seeds are tan colored. Examples: Brown Crowder, Sugar Crowder, Silverskin Crowder, Alabama Crowder ( not the same as Alacrowder), Mississippi Silverskin, Jackson 21, Dixie Lee, Producer, Calhoun Crowder, and Colossus.

**7. Speckled Crowder group**. Speckled and mottled, often blue, seeds are moderately crowded in pods. The group has the largest seeds of the southern

peas. Examples: Blue Goose (Gray Goose, Taylor), Whittle, Speckled Java, Gray Crowder, Mayo Colima, and Calico Crowder (Hereford peas and Polecat peas).

**8. Cream (Conch) group**. Seeds are light green or white. Cooking water comes bright and clear. Since most creams are uncrowded, most fit here. Examples: Floricream, Sadandy, Cabbage (Bush White Acre), Running Acre (Running Conch), Topset, Snapea, Climax, Bush Conch, White Acre, Terrace, Gentleman, Texas Creams, Mississippi Cream, Mississippi Silver, and Elite.

**9. Cream Crowder group**. Similar to (8) above, but seeds crowded in the pods. Examples: Zipper, Zipper Cream, Lady, Lady Cream, and Lady Finger (Rice or Catjang).

**10. Purple Hull group**. Seed pods show some purple coloring, either entire or at tip. Seeds may be crowded or not. Usually white seeds with buff, brown, or pink eyes. Examples: Pinkeye Purple Hull, Purple Hull, Knuckle Purple Hull, Clemson Purple, Herbken, Jackson Purple Hull, Dixie Queen, and Purple Tip Crowder.

**11. Red-seeded group**. Examples: Bisbee Red, Chinese Red Bean, and Corrientes.

**12. Field and forage group**. These are grown primarily for forage cropping and soil improvement, but are sometimes eaten as a table legume. Examples: Iron, Clay, Whipporwill, Groit, Brabham, Victor, Arlington, Red Ripper, Columbia, and Michigan Favorite.

***(Stephens, Vegetarian 00-02)***

## *Extension Vegetable Crops Specialists*


**Daniel J. Cantliffe**
Professor and Chairman, Horticultural Sciences Department

**Timothy E. Crocker**

Professor, deciduous fruits and nuts, strawberry

**John Duvall**
Assistant Professor, strawberry

**Betsy M. Lamb**
Assistant Professor, production

**Yuncong Li**
Assistant Professor, soils

**Donald N. Maynard**
Professor, varieties

**Stephen M. Olson**
Professor, small farms

**Mark A. Ritenour**

Assistant Professor, postharvest

**Ronald W. Rice**
Assistant Professor, nutrition

**Steven A. Sargent**
Professor, postharvest

**William M. Stall**
Professor, weed control

**James M. Stephens**
Professor and Editor, vegetable gardening

**Charles S. Vavrina**
Associate Professor, transplants

**James M. White**
Associate Professor, organic farming

This page is maintained by Susie Futch.... if you have any questions or comments, contact me at zsf@gnv.ifas.