More YWC was applied to the box for the fall, 1990 planting of cucumbers and mustard greens. The cucumber yields were poor, while the mustard grew a bit better. However, mustard yields were far lower than all other treatments (Table 2). Apparently, 6 months was not sufficient time for the YWC to supply the nutrient needs of these and probably other vegetables. Again, the addition of organic fertilizer (Fertrell™) to the compost was accompanied by enhanced yields at both the high and low rates for both mustard and cucumbers. The best cucumber yield in the trial was recorded for YWC plus Fertrell™ (210 oz/plot), topping yields on Fertrell alone (160 oz/plot) and chicken litter (128 oz/plot) (Table 2).

In the spring of 1991, further applications of YWC to the box just prior to planting 'Better Boy' tomatoes resulted in fair yields of fruit at the lower rate (2 lb/ft^2), but rather poor yields where twice the amount (4 lb/ft^2) was applied (Table 3). The strong implication again is that YWC by itself needs sufficient time to decompose properly for best vegetable response. Higher rates tended to widen the C:N ratio, thus retarding growth. However, in this trial, the organic fertilizer (Fertrell™) supplement to the YWC was not accompanied by a yield increase, most likely due to the depressing effects of the YWC. Tomatoes yielded 117 oz/plant with Fertrell™ alone compared with 62 oz/plant where YWC was included (Table 3).

With the fall 1991 planting, good yields (28 oz/plot) of 'California Blackeye' and 'Pinkeye Purplehull' peas were harvested at the high rate of YWC; however, a better yield (32 oz/plot) was recorded at the high rate of YWC with the Fertrell™ supplement (Table 4). Apparently, with the passage of time during the summer months, the YWC became more productive. Even so, the organic fertilizer supplement was helpful.

Table 5 shows that a good yield of tomatoes (106 oz/plant) was obtained when YWC was mixed into the plant hole at the rate of .60 lb/ft^2, in the spring of 1992. This was about equal to the yield of tomatoes (119 oz/plant) where chicken litter had been used (Table 5). There was no increase in tomato yields when YWC was supplemented with organic fertilizer; however, pepper did respond to the supplement, producing an average of 3.5 peppers per plant compared with only 1 pepper with YWC alone.

Summary. The results of these observations made over a period of 5 growing seasons indicated that an assortment of organic soil amendments/fertilizers are available for successful use by vegetable gardeners and perhaps farmers. As had been expected, the amendments containing poultry manure (poultry compost, chicken litter, and organic fertilizer) were faster acting and thus more likely to injure plants when applied too near planting or too close to the plant roots than the plant-derived yard waste compost. The yard waste compost tested showed promise as a soil amendment for growing vegetables when used by itself, but was better when supplemented with animal manure or organic fertilizer as components. Indications are that relatively large amounts (40 tons/acre) of YWC could be applied yearly to garden soils if organic fertilizer supplements are added and sufficient time (several months) is allowed for further decomposition.

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SNAP BEAN, SWEET CORN, MUSKMELON AND CUCUMBER VARIETY EVALUATIONS IN ORGANIC GARDEN CULTURE

S. R. KOSTEWICZ
Horticultural Sciences Dept.
IFAS, University of Florida
Gainesville, FL 32611-0690

Abstract. **Home garden varieties of 20 snap beans (*Phaseolus vulgaris* L.), 32 sweet corn (*Zea mays* L.), 42 muskmelon (*Cucumis melo* var. *reticulatis*) and 15 cucumbers (*Cucumis sativus* L.) were evaluated for yield and various other parameters when grown utilizing organic methods during the spring of 1992. Forty tons/acre rate of poultry manure plus bedding was used as preplant fertilizer. The snap bean trial was replicated; the others were observational plantings. Six varieties ('Bush Blue Lake', 'Harvester', 'Contender', 'Duchess', 'McHarvest' and 'Triumph de Farcy') were statistically different from the other varieties. The highest mean total yield was 6 pounds of beans from 10 feet of row (3 harvests, 1 week apart). Sweet corn was spaced 12 inches in row, 36 inches between rows and 30 feet long in an emerged annual ryegrass living mulch. Three yellow ('Calypso', 'Jubilee' and 'Merit'), 2 bicolor ('Bi-Queen' and 'Summer Flavor 76BC') and 2 white ('Silver Queen' and 'Summer Flavor 81W') types were**

the best by number of ears harvested, weight and eating quality of the varieties within each category. Variety response to the living mulch reflected vigor of the plant and climatic adaptability. Muskmelons were planted in hills 36 inches apart with 60 inch row spacing. The highest yielding (number and weight) and best quality (by taste) of the early melons were 'Eastern Star' and 'Sweet 'N Early'. Notable later melons were 'Burpee's Ambrosia', 'Grande Gold', 'Tesoro', 'Primo', 'Tangiers', 'Dixie Jumbo' and 'Tender Sweet'. Cucumbers were planted in hills 30 inches apart. Top ranking varieties were 'Amira', 'Dynasty', 'Marketmore', 'Poinsett 76', 'Slice Nice', 'Supersett' and 'Tasty Green'.

Organic cultural methods for vegetable production rely heavily upon pest management techniques other than chemical tools that use synthetic organic pesticides. The key control measure most frequently emphasized is reliance upon varieties that have maximum pest resistance and adaptability for the climatic conditions of a given area (Coleman, 1989). Most varietal recommendations for Florida vegetables (Stephens, 1991; Maynard, 1986) have been developed using pesticides as a tool in the pest management program for standard home garden or commercial production situations where pesticides are permitted. In those instances pest resistance and/or tolerance in varieties is also important and is used to reduce the need for or level of pesticide use particularly under low pest population levels.

Few documented results of variety trials using only organic control measures and organic cultural methods have been reported in Florida. It seems reasonable to expect that varieties with the greatest pest resistances (most commercially used varieties) should provide the best results in an unsprayed situation. Frequently, the most resistant varieties (commercial varieties) are not readily available or acceptable to home gardeners or small growers specializing in organic production. In these circles the perception is that home garden or old and/or heritage varieties have better taste, flavor, etc. than standard commercially grown varieties. The objective of this study was to evaluate a number of home garden varieties for yield and vigor when grown with organic cultural methods.

Materials and Methods

The trials were conducted at the Organic Vegetable Gardening Research and Education Park located on the campus of the University of Florida in Gainesville. The site was established in 1989 to facilitate the development of an information base useful in extension and teaching activities of the Horticultural Sciences Department and the Institute of Food and Agricultural Sciences. The study area had been used for an Organic Vegetable Gardening class conducted since 1985 during the fall of each year. The reported studies were conducted during the spring of 1992. The area was fertilized with a 40 ton/acre rate of an aged poultry manure/hay bedding material stored under a tarpaulin for several months. The material was spread and rototilled into the soil to a depth of 6 to 8 inches 30 days prior to planting. Just prior to planting of each crop the area was rototilled again to facilitate planting. Three replications of twenty snap bean varieties (Table 1) were planted 18 March in rows 24 inches apart with seeds 2 inches apart in 12 foot rows. Thirty two sweet corn varieties (Table 2) were planted 17 March with 12 inches between seed in the row and 36 inches between rows with row length of 30 feet. The corn was planted in 6 inch wide tilled swaths made in previously planted annual ryegrass living mulch planted 6 days prior to the corn seeding. Forty two muskmelon (Table 3) and 15 cucumber (Table 4) varieties were planted 23 March using the "hill" system where 5-6 seed were planted and later thinned to 1 plant in 2 stages following emergence. The spacing for both crops was 4 feet in the row and 5 feet between rows. The sweet corn, muskmelon and cucumber plantings were not replicated in order to observe a greater number of cultivars with a limited labor force. All the crops were sprayed weekly with an insecticidal soap and spot treated as needed with rotenone or *Bacillus thurengensis* for insect control. One application of elemental sulphur was made late in the season to prevent complete loss of the muskmelon foliage. The plots were overhead irrigated as needed. Sidedressing with a fish emulsion product (1 pint/1000 ft^2) was done weekly until harvest.

Table 1. Marketable yield means of snap bean varieties grown under organic culture, spring 1992.

Variety	Marketable yield, lb/10 ft		
	Harvest 1	Harvest 2	Total Weight
Bush Blue Lake	4.1	1.9	6.0
Harvester	3.6	1.5	5.1
Contender	4.3	0.7	5.0
Duchess	4.4	0.6	5.0
McHarvest	3.8	0.7	4.5
Triumph de Farcy	3.7	0.7	4.4
Bush Kentucky Wonder	3.3	0.6	3.9
Triumph	2.9	0.9	3.8
Burpee's Tenderpod	2.5	0.9	3.4
Burpee's Brittle Wax	2.6	0.7	3.3
Gator Green	2.6	0.5	3.1
Tendergreen	2.7	0.4	3.1
Earliserve	2.6	0.0	2.6
Tenderpick	1.3	1.3	2.6
Wax Romano	1.3	1.1	2.4
Label	1.6	0.7	2.3
Mountaineer Half Runner	1.0	1.2	2.2
Burpee's Stringless Green Pod	1.7	0.4	2.1
Tennessee Green Pod	1.7	0.3	2.0
Roma II	1.0	0.4	1.4
Significance[z]	**	**	**
LSD	1.6	0.5	1.0

[z]** significant at the P = 0.001 level.

Results and Discussion

The spring months of March and early April of 1992 were characterized as cooler than normal which resulted in slow early growth of all 4 crops. Late April and most of May had normal temperatures and an abundance of rainfall resulting in high humidity conditions favorable for foliar disease development.

Snap Beans. Total yield of marketable pods varied from a low of 1.4 to a high of 6.0 lbs/10 ft of row (Table 1). Six varieties ('Bush Blue Lake', 'Harvester', 'Contender',

Table 2. Stand and marketable yield of sweet corn varieties, spring 1992.

Variety	Stand (No. plants)	Yield (No. ears)	Yield (lb/30 ft)
Yellow			
76 Days			
Earliking	22	16	7.0
Early Sunglow	22	17	7.2
79 Days			
Merit	23	27	17.3
Jubilee	24	26	16.5
Calypso	23	28	15.3
Summer Flavor 82Y (S.F. 82Y)	22	20	12.1
Golden Cross Bantam	23	22	11.0
Pristine	21	19	10.3
Miracle	18	15	10.0
S.F. 72Y	24	10	5.1
S.F. 64Y	24	11	4.0
S.F. 73Y	23	9	2.3
85 Days			
Golden Queen	19	30	19.8
Seneca Chief	23	20	10.6
S.F. 79Y	20	15	9.1
Sensation 85	24	21	8.9
Breeder's Choice	19	4	1.7
Ambrosia	19	4	1.5
92 Days			
Calumet	18	16	8.4
Bicolor			
76 Days			
Breeder's Bicolor	18	15	9.0
79 Days			
S.F. 76BC	20	31	19.9
Honey and Cream	22	24	12.3
Honey 'N Pearl	11	7	4.5
85 Days			
BiQueen	22	30	19.7
White			
79 Days			
Seneca Starshine	14	17	10.5
Silver Xtra Sweet	5	5	2.2
85 Days			
S.F. 81W	24	36	20.7
Silver Queen	22	30	18.3
S.F. 72W	21	22	11.7
Platinum Lady	21	20	9.1
How Sweet It Is	22	19	8.4
92 Days			
Country Gentleman	24	15	10.0

'Duchess', 'McHarvest' and 'Triumph de Farcy') were highest yielding in the first harvest and total yield. All 6 varieties had less disease and a larger denser canopy than the others resulting in the higher yields. The first 3 varieties are currently recommended varieties for the home garden and have exhibited a great adaptability for Florida conditions in general. 'Mountaineer Half Runner', 'Wax Romano', 'Roma II', 'Burpee Brittle Wax' and 'Burpee Tenderpod' were affected by dampoff and seedling loss, resulting in spotty stands and weak unproductive plants. Only 'Tennessee Greenpod' was so drastically stunted with foliar disease problems that 40 to 45% of the plants were lost.

Table 3. Yield of muskmelon varieties spring 1992.

Variety	Yield per plant Number	Yield per plant Weight, lb
Early Harvests (80-90 days)		
Sweet 'N Early	10	26.2
Eastern Star	4	23.3
Star Headliner	7	21.3
Sweet Bush	8	12.9
Green Nutmeg	7	12.0
Road Runner	4	11.8
Burpee Hyb.	6	11.7
Minnesota Midget	9	10.2
Eden Gem	5	9.6
Hyb PS4273	2	8.4
Early Silver Line	5	7.9
Delicious	4	7.5
Pulsar	2	6.2
Schoon's Hard Shell	1	5.4
Bush Star	2	3.9
Savor	1	2.2
Musketeer Bush	1	2.1
Top Mark	1	2.0
Mid Harvests (90-100 days)		
Magnum 45	10	25.3
Ambrosia	6	25.0
Primo	4	23.2
Tangiers	5	21.8
Market Star	6	20.0
Heart O Gold	4	12.8
Dixie Jumbo	3	12.5
Hale's Best Jumbo	2	7.8
Savor	3	6.5
Top Mark	2	4.4
Super Market	1	2.7
Late Harvests (100+ days)		
Grande Gold	10	44.5
Durango	7	35.6
Lucious Plus	5	31.5
Otero	5	21.6
Tesoro	5	24.7
Tendersweet	3	12.5
Saticoy	2	10.7
Aurora	2	9.3
Mainstream	3	9.4

Sweet Corn. Marketable yield of sweet corn varieties is listed in Table 2. The competitive effect of the living mulch (annual ryegrass) was strong early in the season due to unseasonably cool temperatures which kept the grass growing actively and thus competitively with the sweet corn. Mid to late season temperatures were sufficiently warm to impede the ryegrass development. Yellow kernel midseason varieties that were notably productive were: 'Merit', 'Jubilee' and 'Calypso'. The late season variety 'Golden Queen' was striking in producing distinctly more than 1 ear per plant on average (19 plants with 30 harvested ears). These varieties are being recommended for commercial and home garden situations.

Muskmelon. The season in general was not favorable for muskmelon with cool wet conditions early that resulted in slow growth and small plants with short vines. Later in the season daily showers and frequent heavy showers resulted in foliage diseases and poor quality fruit (low sugar and fruit cracking). Per plant yields of 38 of the 42 muskmelon varieties indicate several early, mid and late varieties that had good size (Table 3). Early melons of note were 'Sweet 'N Early', 'Eastern Star' and 'Star Headliner'. Mid season highest yielders were: 'Magnum 45', 'Ambrosia', 'Primo',

Table 4. Early, midseason and late yield of cucumber, spring 1992.

Variety	Yield per plant							
	Early[z]		Mid[y]		Late[x]		Total	
	(No)	(lb)	(No)	(lb)	(No)	(lb)	(No)	(lb)
SliceNice	30	16.0	82	51.8	36	22.1	148	89.9
Poinsett 76	15	8.5	78	52.9	29	21.9	122	83.3
Tasty Green	14	11.1	48	43.8	48	28.6	110	83.5
Supersett	23	13.8	57	41.1	39	25.8	119	80.7
Marketmore 76	1	0.3	54	39.0	53	35.3	108	74.6
Dynasty	32	15.1	60	41.4	23	12.9	115	69.4
Burpee Hyb.	33	17.8	39	28.2	27	19.0	99	65.0
Slicemaster	27	13.3	48	34.9	24	13.9	99	62.1
Sweet Delight	18	12.0	33	29.2	24	18.5	75	59.7
Sweetslice	17	9.6	35	22.7	19	14.3	72	46.6
Amira	28	16.6	38	22.3	10	6.2	76	45.1
Seneca Trailblazer	7	4.7	25	18.6	5	2.4	37	25.7
Straight Eight	12	5.4	6	3.9	0	0	18	9.3
Vert de Massey	3	1.0	1	0.4	0	0	4	1.4

[z]Harvested weeks 1-5.
[y]Harvested weeks 6-10.
[x]Harvested weeks 11-14.

and 'Tangiers'; and best late season yielding melons were: 'Grande Gold', 'Durango', and 'Lucious Plus'. Quality (sweetness) was subjectively rated by organoleptic testing following harvest. Melons that rated as moderately sweet were 'Sweet 'N Early', 'Eastern Star', 'Ambrosia', 'Grande Gold', 'Primo', and 'Luscious Plus' (data not presented).

Cucumber. 'SliceNice', 'Poinsett 76', 'Tasty Green', and 'Supersett' were the highest yielding of the cucumber varieties observed (Table 4). Twelve of the 14 varieties grew and yielded a heavy output of fruit. They were harvested 14 times and finally terminated when foliar disease became severe enough to reduce flowering and fruit set.

These responses under organic cultural conditions are indicative of the high quality varieties available from modern seed producers. Many of these varieties are currently recommended for home and commercial planting because of their demonstrated adaptability to Florida conditions. However, because severe disease pressures did not appear until late in the season, most of the varieties evaluated were able to produce some yield.

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