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Bell Pepper Cultivar Evaluation, Northern Indiana, 2004
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Twelve bell pepper cultivars were evaluated at the Pinney-Purdue Ag Center in Wanatah, Indiana. Characteristics of interest included yield, and fruit quality, size and shape.

Materials and Methods. The trial was conducted on a Tracy Sandy Loam, fertilized in fall 2003 with 300 lb./A 8-32-16 and before planting in spring 2004 with 60 lb./A each N, P₂O₅ and K₂O from 19-19-19. The trial was arranged in a randomized complete block design with 3 replications. A single plot consisted of 12 plants in two rows, spaced 1.5 ft. apart within the row. Rows were centered on top of 30-in. beds on 5-ft. centers covered with black plastic mulch. Peppers were seeded on April 15, except for Alliance, which was seeded on April 25, and transplanted on June 7, 2004. A 9-45-15 starter fertilizer mixed at a concentration of approx. 13 oz./50 gal. water was applied at transplanting. Beginning mid-July an additional 30 lb./A N was applied through drip irrigation in 3 installments. Weeds were controlled with one application of Sandea applied between rows, and hand weeding. To control European corn borer, Mustang was applied on Aug. 31. On Aug. 9, Aug. 23-24, Sept. 9 and Sept. 27, fruit were harvested from the center 8 plants per plot. In some cases, early season plant mortality meant there were only 7 plants to harvest. For the first 3 harvests, fruit were graded into USDA Fancy, USDA No. 1 and No. 2 combined, and culls. USDA Fancy fruit were sorted by size into Jumbo (> 4 in. in diameter and length), Extra Large (> 3.5 in. diameter and 3.75 in. length) and Large (> 3 in. diameter and 3.5 in. length). These sizes were chosen based on measurements of peppers packed by a producer for wholesale sales. For the second and third harvests, the number of Fancy fruit with more than 4, 3, or 2 lobes was recorded. For the final harvest only the total weight of all fruit, ungraded, was recorded. Yield and fruit number were converted to per plant values prior to analysis. Analyses of variance were performed and means separated using Fisher's protected LSD at $P=0.05$.

Results and Discussion. Table 1 shows results of the trial. Yield of USDA fancy peppers through Sept. 3 ranged from 1 to 2.2 lb. per plant, but did not differ significantly among cultivars. Yield of jumbo peppers through Sept. 3 ranged from 0.11 to 1.17 lb. per plant. Alliance was the top producer of jumbo peppers, producing 75% more than Revolution and over 90% more than ACX 238, which had the 2nd and 3rd highest yields of jumbo peppers. Because Alliance was seeded two weeks after other cultivars it is not possible to determine whether this high early yield of large peppers was due to genetics alone, or whether the later seeding date also influenced production. Some of the largest peppers would probably be considered over the maximum desirable size for most wholesale markets. The average weight of a marketable pepper (combined USDA Fancy, No. 1 and No. 2) ranged from 0.49 to 0.60 lb. Alliance and Revolution both averaged 0.60 lb. per pepper, followed by Orion, ACX 238, GVS 4006, King Arthur, and Aristotle X3R, which did not differ significantly from Alliance. The percentage of Fancy fruit with 4 or more lobes ranged from 31 to 73, but significant differences among cultivars were not found. Fruit of GVS 4000, 4006, 4011, and ACX 238 tended to be elongated. Legionnaire and GVS 4011 produced a significantly higher number of cull fruit than ACX 238, Aristotle, Crusader, Excursion II, GVS 4006 and King Arthur; other cultivars were intermediate. The percent of fruit harvested through Sept. 3 that was Fancy ranged from 42 for Crusader to 74 for ACX 238, but significant differences among cultivars at the 5% level were not found. Yield through Sept. 27 of all peppers, marketable and cull, ranged from 3.4 lb. per plant for GVS 4011 to 5.3 lb. per plant for Aristotle X3R, but significant differences among cultivars at the 5% level were not found. Cultivars that produced a higher percentage of total yield by the first harvest than others included Alliance and Revolution. Cultivars that looked most promising based on yield of large, blocky, high quality fruit were Alliance and Revolution. If very large fruit is not a high priority, the other blocky to slightly elongated cultivars Orion, Crusader, Excursion II, Aristotle and King Arthur also looked good. If blockiness is not a high priority, the cultivars ACX 238, GVS 4000, GVS 4006 and GVS 4011 deserve further consideration.

Table 1. Total and graded yield, fruit number, and average size of fruit for twelve bell pepper cultivars, Wanatah, Indiana, 2004.

Cultivar	Source†	Peppers Harvested Aug. 9, Aug. 23, Sept. 3						All Peppers Harvested Aug. 9 - Sept. 27																
		Yield and Number of USDA Fancy Fruit		Yield and Number of USDA No. 1 and No. 2		Average Size		Yield and Number of Fancy Fruit with		Yield and Number of Cull Fruit		Yield Distribution		Yield and Number of All Fruit										
		All Sizes	Jumbo††	Ex. Lg.††	Large††	no./plant	lb./plant	no./plant	lb./plant	lb./fruit	Fancy Fruit with 4 lobes	% by count	3 lobes	no./plant	lb./plant	Fancy No. 1 & 2	% by wt.	Cull	no./plant	lb./plant	9-Aug	23-Aug	3-Sep	27-Sep
ACX 238	AC	3.6	2.2	0.61	1.18	0.40	0.9	0.4	0.58	50	49	0.7	0.3	74	16	10	8.3	4.1	15	28	22	22	35	
Alliance	ST	3.3	2.1	1.17	0.38	0.51	1.0	0.5	0.60	65	33	1.5	0.7	62	16	23	9.6	4.9	22	33	19	26		
Aristotle x3R	SM	2.6	1.5	0.42	0.84	0.26	1.1	0.5	0.55	62	38	0.8	0.4	58	23	19	11.8	5.3	10	53	18	18		
Crusader	SY	2.2	1.2	0.11	0.51	0.62	2.4	1.3	0.54	43	57	0.8	0.5	42	43	15	8.4	4.2	8	30	30	33		
Excursion II	AC	2.4	1.3	0.11	0.79	0.44	1.3	0.6	0.53	61	39	0.8	0.3	58	28	14	10.0	4.1	7	46	27	21		
GVS 4000	GV	3.1	1.7	0.14	0.96	0.59	1.3	0.5	0.50	60	37	1.0	0.4	64	21	15	9.0	4.0	10	37	33	19		
GVS 4006	GV	3.1	1.8	0.26	1.04	0.53	1.4	0.7	0.56	44	53	0.7	0.4	60	26	14	11.4	4.8	8	39	29	24		
GVS 4011	GV	1.9	1.0	0.14	0.62	0.23	0.7	0.3	0.49	31	64	1.6	0.5	54	20	26	9.0	3.4	11	49	22	17		
King Arthur	R	2.9	1.8	0.46	0.74	0.59	2.1	1.0	0.56	65	34	0.8	0.4	57	32	11	10.3	4.9	14	36	25	26		
Legionnaire	SY	2.3	1.2	0.22	0.65	0.37	1.5	0.6	0.51	62	38	1.6	0.5	51	27	23	8.8	3.6	7	34	34	25		
Oton	R	2.4	1.5	0.28	0.53	0.71	1.8	0.9	0.59	58	42	1.0	0.5	50	34	16	8.5	4.2	13	32	27	29		
Revolution	R	1.9	1.2	0.67	0.38	0.18	0.8	0.4	0.60	73	27	1.3	0.6	57	16	27	8.6	3.9	20	44	12	24		
Grand Mean		2.6	1.5	0.38	0.72	0.45	1.3	0.7	0.55	56	43	1.0	0.5	57	25	17.8	9.5	4.3	12	38	25	25		
CV effect#		NS	NS	****	NS	NS	*	**	****	NS	NS	*	NS	+	NS	+	NS	+	NS	+	***	NS	NS	NS
LSD .05##				0.11			1.0	0.5	0.05					0.7					6					

†Seed Source: AC=Abbott & Cobb, RI=Rispens Seeds, GV=Golden Valley Seed, SM=Seminis, ST=Stokes Seeds, SY=Syngenta

††Size class based on diameter and length. Jumbo > 4 in. both dimensions. Ex. Lg. > 3.5 in. diameter and 3.75 in. long. Large > 3 in. diameter and 3.5 in. long.

#Significance of cultivar effect from AOV: +, *, **, ***, ****=P < 1, .01, .001, .0001, respectively. ns=P > 1.

##Fisher's Protected Least Significant Difference at P < .05.

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