

Bell Pepper Cultivar Evaluation, Northern Indiana, 2005
Elizabeth T. Maynard, Purdue University, Westville, IN 46391

The USDA Agriculture Census for 2002 reported 225 acres of bell peppers grown in Indiana. Production is scattered across the state, with greater concentrations of farms in northern counties. Wholesale prices are highest for large, blocky peppers. Eight 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. Fertilization and pest management practices followed standard recommendations for the area. 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 17 in 72-cell square Landmark® plug trays, and transplanted on June 2, 2005. A 9-45-15 starter fertilizer mixed at a concentration of 12 oz./50 gal. water was applied at transplanting. Irrigation was applied as needed through drip tape under the plastic. Peppers were harvested on Aug. 3-7, 19, 26, and Sept. 9. 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 first harvests, the number of Fancy fruit with more than 4, 3, or 2 lobes was recorded. Yield and fruit number were converted to per acre values prior to analysis. A 1-1/9 bu. box was assumed to hold 28 lbs. of peppers. 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 ranged from 380 to 941 boxes per acre. Excursion II, Aristotle X3R and Legionnaire produced the highest yields of Fancy peppers. The yield of jumbo peppers did not differ among cultivars, but the percentage of marketable yield in the jumbo size class ranged from 25% for Alliance to 3% for Crusader. Crusader had the highest percentage of No. 1 and No. 2 peppers. Crusader peppers tended to be short and broad; many were too short to be included in the Fancy grade.

The average weight of a USDA Fancy pepper ranged from 0.53 to 0.61 lb. and did not differ among cultivars. The percentage of Fancy peppers with 4 or more lobes was highest for Crusader at 88%, but did not differ among other cultivars, which ranged from 54% to 67%.

The percentage of marketable yield harvested the first week of August ranged from 14% for Alliance, Aristotle X3R and Revolution, to 3% for Crusader, but differences were not statistically significant.

Much fruit produced was classified as cull: nearly 50% by weight from the first harvest, and about 30% by weight from the later harvests. Blossom end rot and decay were the most common problems (data not shown).

Based on observations in the field, fruit of Alliance, Revolution and 4-Star were about as long as they were wide. Aristotle X3R and Legionnaire fruit tended to be a little more elongated. Excursion II and ACX 238 tended to be elongated and narrow. Crusader tended to be short and wide.

Cultivars that looked most promising based on yield of large, blocky, high quality fruit were Aristotle X3R and Legionnaire. Alliance and Revolution also produced high quality peppers, but with slightly lower yield of Fancy peppers.

Table 1. Marketable yield and average size of USDA Fancy peppers for eight bell pepper cultivars, Wanatah, Indiana, 2005.

Cultivar	Source†	Yield of USDA Fancy Peppers			Yield of USDA 1 & 2	Average Size Fancy	Fancy Fruit with ≥ 4 lobes % by no.	Grade Distribution			Percent Harvested					
		All Sizes		Target††				Jumbo	Ex. Lg.	Large	No.1 & 2	19-Aug	26-Aug	9-Sep		
		Jumbo††	Ex. Lg.††	Target††												
4 Star	RU	619	130	209	280	488	0.57	57	12	19	25	44	6	50	30	14
ACX 238	AC	661	118	293	251	329	0.55	66	12	29	25	33	9	45	31	15
Alliance	HM	688	305	149	234	450	0.61	61	25	13	22	39	14	45	27	14
Aristotle X3R	RU	895	245	359	291	402	0.57	62	19	27	22	31	14	42	31	13
Crusader	SY	380	30	102	248	677	0.56	88	3	10	23	64	3	41	38	17
Excursion II	AC	941	141	419	380	462	0.53	54	10	30	27	33	5	34	43	17
Legionnaire	SY	718	221	230	267	358	0.55	60	20	21	24	34	4	42	29	26
Revolution	HM	445	187	112	146	413	0.60	67	20	11	18	51	14	37	26	24
Grand Mean		668	172	234	262	447	0.57	64	15	20	23	41.2	9	42	32	18
CV effect#		**	ns	***	+	+	ns	*	+	****	ns	***	ns	ns	ns	ns
LSD .05##		246		248				17		6		12				

†Seed Source: AC=Abbott & Cobb, HM=Harris Moran, RU=Rupp, 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.

Acknowledgments: Abbott & Cobb, Harris Moran, Rupp Seeds and Syngenta provided financial support and seed. J. Leuck, M. O'Neal and J. Grimble at Pinney-Purdue Ag Center provided technical support. B. Gillem, R. Shay, J. Sheets and R. Rhoda provided field assistance.