

Bell Pepper Cultivar Trial

Vince Lawson, farm superintendent

Introduction

The 2005 bell pepper cultivar trial was conducted at the Muscatine Island Research Farm, Fruitland, Iowa, and made possible by funding from Iowa Fruit and Vegetable Growers Association. The trial objective was to identify bell pepper cultivars with good production characteristics suitable for Iowa's variable and frequently stressful growing climate for peppers.

Materials and Methods

Thirteen cultivars having resistance to bacterial leafspot and/or phytophthora blight were planted in the greenhouse on April 15 in 98 cell trays. Pepper plants were transplanted to the field on May 24. Soil type in the trial area was a light-colored loamy sand with approximately 1% organic matter. The replicated trial was grown on raised beds in a double-staggered row system utilizing drip irrigation and black plastic mulch. Fertilizer was applied preplant incorporated in a band under the plastic mulch and by fertigation, that is, through the drip tubes during the growing season. Plant spacing within the row was 21 in., and rows were approximately 12 in. apart on beds equaling a plant population of 7,112/acre. Pest control was achieved with practices recommended in FG-600, Midwest Vegetable Production Guide. Peppers were picked when fruit diameter was 2.5 in. or greater. There were six harvests on July 27; August 3, 11, 23, 30; and September 6. Data presented in Table 1 are of marketable (free of rot, insect damage, or not severely misshapen) fruit only. "Fancy" fruit were sorted out of the marketable category and are the large,

exceptionally well-shaped fruit that have become the norm in supermarkets. Fancy fruit have a smooth, blocky shape with a length equal to or greater than the diameter and are not marred by indentations, irregular growth, exaggerated lobing, or pointy ends.

Results and Discussion

Total marketable yields in Table 1 were good, ranging from 914 bushels for Blushing Beauty to 1,500 bushels for Alliance. The best producers of large fancy peppers that had exceptionally good shape were Aristotle, Alliance, and Paladin. Aristotle has shown good consistency over three years of trialing and was our top pick in last year's pepper trial (ISU 2004 Annual Fruit/Vegetable Progress Report, FG 601). Alliance, trialed for the first time in 2005, was impressive, producing large bell peppers with good shape. Also, it is reported to have multiple disease resistance against both bacterial spot and phytophthora. Certain cultivars tended to produce fruit that were undesirably short in length as compared to diameter (length/diameter ratios under .95), as listed in Table 1. The worst offenders were Lafayette, Revolution, Valencia, and Orion. Valencia developed an attractive rich orange color when allowed to mature and would be best used for the colored market. However, it did not like our summer growing conditions and produced a high percentage of peppers that were short and squatty. Fruit shape did seem to improve when cooler temperatures arrived in late summer. Blushing Beauty bore nice well-shaped fruit that began as ivory colored and slowly changed to red as they matured. They were most attractive when the ivory color developed a red blush during the color transformation.

Table 1. Bell pepper cultivar trial marketable yield and fruit characteristics.

	Seed Source	Fancy (bu/acre) ¹	Total yield (bu/acre) ¹	Average fruit wt. (lb)	Fruit length (in.)	Fruit length/dia. ratio ²	Fruit color ³
Aristotle	ST ⁴	907	1,395	.46	3.70	1.05	G-R
Alliance	HM	901	1,500	.48	3.57	1.01	G-R
Paladin	RG	797	1,277	.47	3.82	1.09	G-R
Revolution	HM	718	1,330	.48	3.44	.92	G-R
Lafayette	RG	706	1,362	.48	3.40	.92	G-Y
Brigadier	RI	643	1,300	.43	3.58	1.03	G-R
Early Sunsation	ST	579	1,111	.42	3.36	.97	G-Y
Blushing Beauty	ST	568	914	.42	3.23	.97	Ivory-R
Patriot	HM	558	1,285	.43	3.40	.96	G-R
Orion	RU	501	1,317	.50	3.30	.90	G-R
Red Knight	ST	482	1,074	.42	3.36	.99	G-R
Valencia	RU	376	1,240	.38	3.21	.95	G-Orange
King Arthur	RU	356	1,270	.44	3.50	.99	G-R
Average		627	1,259	.45	3.45	.98	
LSD 5%		172	252	.02			

¹Bushel/acre, bushel=28 lb.

²Fruit length/diameter ratio: .95=very blocky, flattened shape; 1.00=blocky, length equal to diameter; 1.05=elongated shape with length greater than diameter.

³Fruit color: G=green, R=red, Y=yellow.

⁴See the Acknowledgments in the Muscatine Island Research Farm Association for these companies.