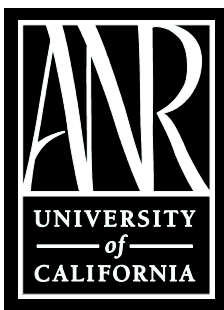


**2003
BELL PEPPER
VARIETY EVALUATION
TRIALS**



*In
San Joaquin County*



University of California
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420 South Wilson Way
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2003 BELL PEPPER VARIETY EVALUATION TRIALS

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The Central Valley is a major center of bell pepper production in California. San Joaquin County had nearly 2,300 acres of all types of peppers (primarily bell peppers) in 2003 for both fresh market and processing. The requirement for varieties that have high yield potential and possess excellent horticultural characteristics is essential to the continued economic health of the pepper industry. Most of the production in this area occurs during midsummer into late fall.

Because a substantial acreage of the crop is harvested during a period of shorter days with cool, humid nights, disease (Black mold, Botrytis, Phytophthora, etc.) and physiological disorders (Sunburn, Pepper Spot, Blossom-end rot) are always potential problems for producers. More recently, a complex of virus diseases (cucumber mosaic, pepper mottle, tobacco etch, potato virus Y, ring spot, and/or tobacco mosaic virus) have occurred, resulting in serious losses for some local growers in given years. Frustration with the virus problem has led some growers to reduce or completely get out of pepper production. Fortunately for this area, 2003 proved to be a very limited virus problem year, because the aphid vector responsible for spreading many of the viruses did not appear in heavy numbers, only sporadic populations occurred during the season, after most of the plantings were well established.

Now that there are a number of exciting new pepper cultivars available to producers, information on yield and fruit quality, as well as disease resistance/tolerance levels, is particularly desirable for the local industry. Additionally, Pepper Spot/Black Spot (STIP) has been a problem on a number of varieties grown under short day, cool night conditions, i.e., late summer/fall in this area, and along the coast.

There also may be a relationship of calcium nutritional imbalance in the peppers contributing to the Pepper Spot problem under the aforementioned conditions. Circular, gray/black spots develop under the skin in the fruit wall of some pepper varieties about the time the fruit attain a size diameter of three or more inches. As the fruits ripen, the spots slightly enlarge and turn green or yellow. A number of newer hybrid varieties show a good level of resistance or tolerance to the physiological problem. This year's trial at Foppiano Farms (Skip Foppiano) near French Camp, California, off Austin Road, sought to look at yield and fruit quality of a number of established and new bell pepper lines (including some yellow-fruited lines and one orange-colored line) from commercial seed company breeders. Fruit wall thickness and the incidence of Pepper Spot (STIP) were also evaluated.

The variety trial in 2003 at Foppiano Farms was transplanted on June 24th, and the field variety was Baron. Located southeast of Stockton off Austin Road, the soil type at the trial site was a Stockton adobe clay and the field was sprinkler irrigated throughout the season. The resulting crop stand was excellent with vigorous plant growth and very good fruit set. Climatic conditions over the growth period were warm overall with a very hot month of July during plant growth and early flowering. The trial contained 10 replicated varieties, along with 10 additional lines in single replication observation plots. The trial was hand harvested on October 9, 2003. In addition to marketable yield figures, data on crop maturity and fruit size were taken, as well as fruit wall thickness by averaging 10 cut fruit per sample. In the Replicated Trial, highest yield of red or colored plus green marketable fruit was attained by El Charro at 25.96 tons/acre, followed by XPP 1133 (23.85 tons/acre) , Encore (23.12 tons/acre), Double Up (22.61 tons/acre) and Alexandra (22.40 tons/acre).

Best quality fruit, including blocky shape and good fruit wall thickness was led by Double Up, XPP 1133, HA 2506 and Encore. All of the replicated lines, except for Jupiter, were free of Pepper Spot (STIP). Best fruit wall thickness was achieved by XPP 1133 and Double Up, both at 6.7 mm, followed by Jupiter (6.2 mm) and HA-2506 and Array, both at 6.0 mm. Complete data on the replicated lines (yield, crop maturity, fruit size and fruit wall thickness are provided in **Table 1**. Golden Sun, a yellow fruited line, has semi-long/elongated fruit.

In the observation block of the Foppiano Farms trial, the best yield of red or colored plus green marketable fruit occurred with HA 774 at 29.18 tons/acre, followed by Paso Real (26.86 tons/acre), XPP 1136 (26.00 tons/acre), Orange Blossom, an orange fruited line, at 24.68 tons/acre and RPP 9661 (24.25 tons/acre). In terms of fruit quality, the best lines were Paso Real, HA 774, HA 831 (a yellow fruited variety), Orange Blossom, XPP 1136 and Baron, the field variety. There was no Pepper Spot (STIP) detected in any of the fruit from the observation block cultivars. Best fruit wall thickness occurred with RPP 9661 (6.6 mm), followed by HA 774 (6.0 mm) and Orange Blossom (5.5 mm). Data on yield, crop maturity, fruit size and fruit wall thickness are presented in **Table 2**. The reader of this report is cautioned that the data for the varieties in the observation block represent only one replication of each line.

ACKNOWLEDGEMENTS

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2003 BELL PEPPER VARIETY TRIAL
SEED LIST

Replicated	Observation	Seed Company
Double Up XPP 1133	XPP 0132 (Orange Blossom) XPP 1136 XPP 1135	Sakata Seed
HA 959 (Golden Sun) HA 1038 (El Charro) HA 744 (Alexandra) HA 2506	HA 1195 (Paso Real) HA 831 (Labrador) HA 490 (Shemesh) HA 774	Hazera Seed
Baron		Seminis Seed
Encore Affinity Jupiter Array	RPP 9661 RPP 12731	Syngenta/Rogers

**Table 1. 2003 Bell Pepper Variety Trial
Foppiano Farms – French Camp, California**

Replicated Variety	Marketable Yield ¹ (red/colored + green fruit)		Crop Maturity @ Harvest (%) ¹				Fruit Sizing Data (%) ²					Average ³ Fruit Wall Thickness (mm)
	Tons/acre	25 lb. Boxes	Red/colored	Green	Culls	Pepper Spot Affected Fruit	Jumbo	Extra Large	Large	Medium	Small	
El Charro	25.96	2,077	4.8	77.2	18.0	0.0	32.2	31.3	11.3	9.5	15.7	5.2
XPP 1133	23.85	1,908	24.5	49.6	25.9	0.0	65.0	23.0	9.0	3.0	0.0	6.7
Encore	23.12	1,850	9.9	67.3	22.8	0.0	58.4	12.9	14.8	7.9	6.0	5.8
Double Up	22.69	1,815	37.6	44.8	17.6	0.0	75.8	10.8	10.8	0.0	2.6	6.7
Alexandra	22.40	1,792	4.1	78.3	17.6	0.0	30.8	13.8	10.0	28.5	16.9	5.6
Affinity	21.67	1,734	21.6	58.6	19.8	0.0	62.3	26.2	9.3	0.0	1.9	5.7
HA-2506	21.42	1,714	9.5	71.1	19.4	0.0	47.6	24.2	9.7	10.5	8.0	6.0
Array	20.29	1,623	19.1	58.2	22.7	0.0	38.9	20.4	11.5	15.0	14.2	6.0
Jupiter	19.50	1,560	15.1	54.0	27.7	3.2	61.5	23.1	15.4	0.0	0.0	6.2
Golden Sun	16.34	1,307	6.9	57.6	35.5	0.0	5.6	41.6	29.2	13.5	10.1	5.4
LSD @ 5%	5.65	452										
C.V. =	17.9%	17.9%										
Mean:	21.72	1738										

¹ Average of four replications

² Fruit Sizing Data: Jumbo > 240g; Extra Large 200-240g; Large 170 – 200g; Medium 150-170g; Small < 150g

³ Average of 10 cut fruit per sample

**Table 2. 2003 Bell Pepper Variety Trial
Foppiano Farms – French Camp, California**

Observation Variety	Marketable Yield ¹ (red/colored + green fruit)		Crop Maturity @ Harvest (%) ¹				Fruit Sizing Data (%) ²					Average ³ Fruit Wall Thickness (mm)
	Tons/acre	25 lb. Boxes	Red/colored	Green	Culls	Pepper Spot Affected Fruit	Jumbo	Extra Large	Large	Medium	Small	
HA 774	29.18	2,334	2.1	83.0	14.9	0.0	38.7	37.8	23.5	0.0	0.0	6.0
Paso Real	26.86	2,149	8.5	70.2	21.3	0.0	33.0	35.7	7.8	14.8	8.7	5.4
XPP 1136	26.00	2,080	23.0	64.7	12.3	0.0	49.6	23.5	17.6	9.3	0.0	5.0
Orange Blossom	24.68	1,974	16.7	64.3	19.0	0.0	19.8	42.3	16.2	15.3	6.4	5.5
RPP 9661	24.25	1,940	12.7	72.1	15.2	0.0	81.4	3.9	0.0	2.9	11.8	6.6
Baron	23.96	1,917	39.5	37.2	23.3	0.0	61.3	19.3	5.4	7.5	6.5	5.4
XPP 1135	17.42	1,394	31.3	22.3	46.4	0.0	37.1	29.0	14.5	4.9	14.5	5.4
HA 831	16.70	1,336	35.1	27.0	37.9	0.0	0.0	32.9	29.4	24.7	13.0	5.3
Shemesh	13.50	1,080	27.2	31.6	41.2	0.0	0.0	7.0	35.2	5.6	52.2	5.4
RPP 12731	11.91	953	13.4	32.4	54.2	0.0	10.3	31.0	22.4	6.9	29.4	5.4

¹ Average of only one replication

² Fruit Sizing Data: Jumbo > 240g; Extra Large 200-240g; Large 170 – 200g; Medium 150-170g; Small < 150g

³ Average of 10 cut fruit per sample

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