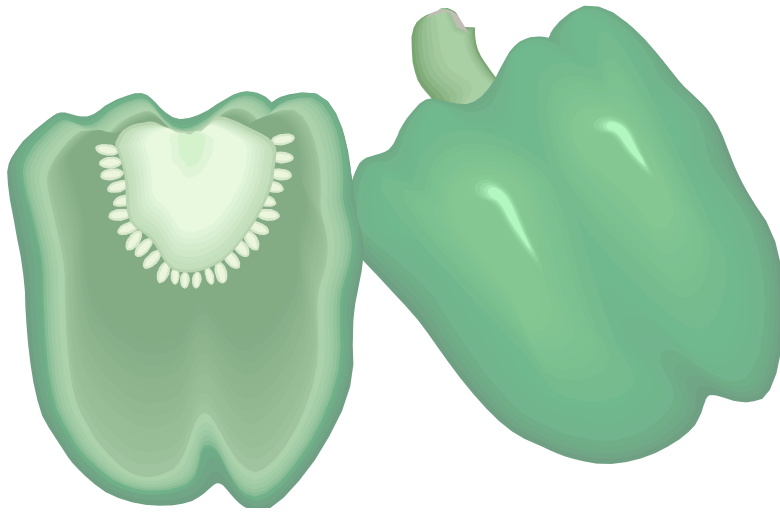
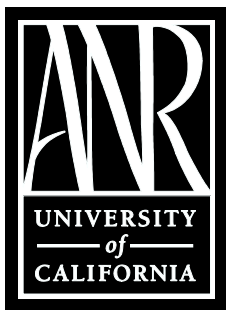


**2002
BELL PEPPER
VARIETY EVALUATION
TRIAL**



*In
San Joaquin County*



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2002 BELL PEPPER VARIETY EVALUATION TRIAL

In San Joaquin County

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The Central Valley is a major center of bell pepper production in California. San Joaquin County had nearly 2,500 acres of all types of peppers (primarily bell peppers) in 2002 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, 2002 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 fruit ripen, the spots slightly enlarge and turn green or yellow, rendering the affected fruit unmarketable. A number of newer hybrid varieties show a good level of resistance or tolerance to the physiological problem. This year's trial at Biglieri Farms (Steve Biglieri) in northeast San Joaquin County, near Dry Creek, 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 multi-colored line) from commercial seed company breeders. Fruit wall thickness and the incidence of Pepper Spot (STIP) were also evaluated.

The variety trial at Biglieri Farms was transplanted on June 18, 2002, and the field variety was Baron. The soil type at the trial site was a San Joaquin loam, and the field was furrow 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 with a few hot days. The trial contained 12 replicated varieties, including the field variety, along with 12 additional lines in single replication observation plots. The trial was hand harvested on September 18, 2002. In addition to marketable yield figures, data on crop maturity and fruit size were taken, as well as fruit wall thickness by averaging 5 cut fruit per sample. Highest yield of red/colored plus green/colored marketable fruit in the replicated trial occurred with Double Up at 30.50 tons/acre, followed by Encore (28.43 tons/acre), HA-959 (Golden Sun), a nice semi-long yellow-fruited line, at 25.55 tons/acre, Mar Rojo (25.33 tons/acre), HA-535 (24.58 tons/acre) and Karma (23.20 tons/acre). Other yellow-fruited cultivars in the replicated trial were Shemesh and HA-831 (Labrador).

Best quality fruit, including blocky shape, fruit shape and good fruit wall thickness, was led by Gusto, Mar Rojo, Double Up, Encore, HA-959 (Golden Sun) and Shemesh. The majority of the replicated lines were free of Pepper Spot (STIP) but Grande Rio had a significant problem with 16% of the fruit affected, followed by much lower levels in Karma, HA-831 (Labrador), Shemesh, HA-959 (Golden Sun), Mar Rojo and Baron. Best fruit wall thickness was obtained by Gusto (6.6 mm), followed by Mar Rojo, HA-535 and HA-959 (Golden Sun). Complete data on the replicated lines (yield, crop maturity, fruit size and fruit wall thickness) are provided in **Table 1**. Karma, HA-535 and HA-959 (Golden Sun) are semi-long to long fruited lines.

In the observation trial block of the Biglieri Farms trial, the best yield of red/colored plus green/colored marketable fruit was achieved by HA-1038 (El Charro) at 33.40 tons/acre, followed by HA-744 (Alexandra) at 31.51 tons/acre, HA-2112 (30.20 tons/acre), Tequila, a multi-colored specialty line (29.04 tons/acre) and XPP-1136 and HA-1195 (Paso Real), both at 28.75 tons/acre. In terms of fruit quality, the best lines were HA-744 (Alexandra), XPP 0132, a yellow-orange fruited line, HA-1195 (Paso Real), HA-2112, RPP 8530 and RPP 8532. There was no Pepper Spot (STIP) detected in any of the fruit of any of the observation block varieties. Best fruit wall thickness occurred with HA-744 (Alexandra) and RPP 8532, followed by HA-2112, HMX 0648, XPP 1135 and RPP 8530. Data on yield, crop maturity, fruit size and fruit wall thickness are shown 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

Many thanks and a great deal of appreciation are expressed to Steve Biglieri (Biglieri Farms) for all his cooperation, help and management in the conduct and maintenance of the variety trial. Many thanks to Rob Matheny of Valley Transplants in Acampo, California, for the high quality transplants provided for the variety trial. Also much appreciation is extended to the participating seed companies for providing the raw materials and monetary assistance to support the bell pepper variety trial program in San Joaquin County.

**2002 Bell Pepper Variety Trial
Seed List**

Replicated	Observation	Seed Company
	Tequila	<u>Enza Zaden Seed</u>
Gusto Karma Grande Rio 66	HMX 0648	<u>Harris Moran Seed</u>
HA-535 HA-831 (Labrador) HA-959 (Golden Sun) HA-1972 (Bango) Shemesh	HA-744 (Alexandra) HA-1038 (El Charro) HA-1195 (Paso Real) HA-2112	<u>Hazera Seed</u>
Encore	Jupiter RPP 8530 RPP 8532	<u>Novartis Seed</u>
Double Up	XPP 0132 XPP 1136 XPP 1135	<u>Sakata Seed</u>
Baron Mar Rojo		<u>Seminis Seed</u>

Table 1. 2002 Bell Pepper Variety Trial
Biglieri Farms; Dry Creek, California

Replicated Variety	Marketable Yield ¹ (red/colored + green/colored fruit)		Crop Maturity at Harvest (%) ¹				Fruit Sizing Data (%) ²					Average Fruit ³ Wall Thickness (mm)
	Tons/Acre	Boxes	Red/colored	Green/colored	Pepper Spot Affected Fruit	Other Culls	Jumbo	Extra Large	Large	Medium	Small	
Double Up	30.50	2,440	11.9	74.4	0.0	13.7	50.4	22.1	20.4	0.0	7.1	5.6
Encore	28.43	2,274	1.0	82.8	0.0	16.2	74.4	5.8	14.0	0.0	5.8	5.4
HA-959	25.55	2,044	7.6	79.6	0.6	12.2	21.7	29.2	26.4	5.7	17.0	6.0
Mar Rojo	25.33	2,026	1.4	90.0	0.6	8.0	51.0	13.5	7.7	6.7	21.1	6.4
HA-535	24.58	1,966	16.5	75.2	0.0	8.3	37.6	22.2	6.0	14.5	19.7	6.4
Karma	23.20	1,856	7.8	59.9	3.6	28.7	49.5	4.1	12.4	20.6	13.4	4.0
HA-831	21.68	1,734	23.8	53.6	1.8	20.8	14.9	25.4	23.9	17.9	17.9	5.0
Shemesh	21.28	1,702	17.5	67.8	0.7	14.0	42.8	21.0	21.9	2.9	11.4	5.4
HA-1972	20.43	1,634	2.9	79.8	0.0	17.3	24.0	14.6	27.0	24.0	10.4	5.0
Baron	20.20	1,616	5.6	82.3	0.6	11.5	46.2	10.2	20.5	12.8	10.3	5.4
Guston	18.93	1,514	15.8	72.7	0.0	11.5	41.2	21.2	9.4	8.2	20.0	6.6
Grande Rio	17.98	1,438	1.6	67.2	16.0	15.2	7.4	25.9	32.2	25.9	8.6	5.4

Mean: 23.17 1,854
LSD @ 5%: 5.58 446
C.V.= 16.7% 16.7%

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 5 cut fruit per sample

Table 2. 2002 Bell Pepper Variety Trial
Biglieri Farms; Dry Creek, California

Observation Variety	Marketable Yield ¹ (red/colored + green/colored fruit)		Crop Maturity at Harvest (%) ¹				Fruit Sizing Data (%) ²					Average Fruit ³ Wall Thickness (mm)
	Tons/Acre	Boxes	Red/ colored	Green/ colored	Pepper Spot Affected Fruit	Other Culls	Jumbo	Extra Large	Large	Medium	Small	
HA-1038	33.40	2,672	3.0	82.2	0.0	14.8	49.5	26.2	13.1	9.3	1.9	5.6
Alexandra	31.51	2,521	6.6	88.2	0.0	5.2	26.2	46.7	9.8	14.8	2.5	6.6
HA-2112	30.20	2,416	13.0	66.4	0.0	20.6	75.8	13.7	10.5	0.0	0.0	6.0
Tequila	29.04	2,323	30.7	57.0	0.0	12.3	0.0	7.2	6.4	41.4	45.0	5.2
XPP 1136	28.75	2,300	14.7	68.5	0.0	16.8	61.0	9.8	22.0	7.2	0.0	5.2
HA-1195	28.75	2,300	0.0	96.1	0.0	3.9	32.7	43.9	8.4	6.6	8.4	5.6
XPP 1135	27.30	2,184	12.3	70.2	0.0	17.5	31.5	30.3	14.6	21.3	2.2	6.0
RPP 8530	26.86	2,149	12.6	80.4	0.0	7.0	70.0	12.7	10.9	0.0	6.4	6.0
RPP 8532	22.51	1,801	6.1	87.8	0.0	6.1	23.0	42.0	12.0	10.0	13.0	6.6
Jupiter	22.22	1,778	2.8	83.1	0.0	14.1	26.9	50.0	6.7	2.9	13.5	4.4
XPP 0132	20.33	1,626	22.8	57.1	0.0	20.1	10.2	14.3	35.7	25.5	14.3	5.6
HMX 0648	20.33	1,626	17.1	62.9	0.0	20.0	16.9	36.0	21.2	16.9	9.0	6.0

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 5 cut fruit per sample

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