



## CHILI PEPPER PRODUCTION

### Possibilities Encouraging In Kern County Trials

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**T**HE IMPORTANT DEHYDRATING chili pepper industry in California is located in the coastal counties from Santa Maria to San Diego. The loss of agricultural acreage in these areas is necessitating a search for new areas of production. Inland valleys of central and southern California offer extensive acreages for this crop, but differ from coastal climates by higher summer temperatures and shorter growing seasons.

An observation plot was established near Shafter during 1962, in cooperation with the Kern County Land Company, to evaluate production of chili peppers in the San Joaquin Valley. Eleven varieties or breeding lines of California (Anaheim) and Mexican (Ancho) chilies were direct seeded, April 9, 1962, in single row blocks, 38 inches apart, with plants thinned 12 to 14 inches in rows. The plot was sprinkler irrigated until midseason, followed by furrow irrigation for the remainder of the growth period. Soil was a Hesperia fine sandy loam.

Pollination and fruit set were erratic during the initial flowering period so that early or crown set was sporadic. The later set, however, was sufficient to produce an

acceptable number of pods per plant. Evaluations at harvest, 192 days after planting, were based on yields of 30 plants from each plot. All fruit on the plants were picked, sorted into red and green classes, and total fresh weight recorded. Dry weights were determined from red and green fruit samples and dry yields per acre calculated, based on 13,780 plants per acre.

### Chili yields

Total dry yield of pepper pods is an important consideration for economical production of this crop. Dry-weight yields obtained in the Shafter trial were considered satisfactory for first year testing. With selection for acclimatization to the area, improved yields should be possible. The column in Table 1 headed "dry weight, pounds per 100 pods" provides an estimation of pod size, an important criterion for high yields. The California chili line 61F6, which appeared to offer the most potential, had a value of 1.51 pounds per 100 pods, compared to a value of 1.26 pounds for this line in Orange County. Pod size at Shafter was smaller in other lines where comparisons between the two areas were possible.

### Color level and pungency

Chili powder is used both as a seasoning and coloring material for a variety of foods, and therefore pungency and extractable color are important in evaluating chili pepper lines. These two qualities are influenced by environment, particularly temperature, during the growing season.

Red color intensity was determined on dried ground powder from mature pods of each line by using a spectrophotometer to read total acetone-extractable pigments at 460 m $\mu$  wave length. Pungency was determined by organoleptic techniques and

TABLE 1. DRYING CHARACTERISTICS AND YIELDS OF CHILI PEPPERS IN SHAFTER TRIAL

Variety or breeding line	Dry wt. %	Drying ratio Fresh/dry	Dry wt. lbs./100 pods	Dry wt. lbs./acre
<b>MEXICAN CHILI</b>				
60M1	17.0	5.9	0.99	2660
60M2	16.6	6.0	0.91	2740
60M3	18.8	5.3	1.13	3490
60M4	17.2	5.8	1.14	3560
60M5	18.0	5.6	0.99	2430
56M190	18.2	5.5	1.07	2950
<b>CALIFORNIA CHILI</b>				
*Lang	24.6	4.1	0.83	3120
*516	29.4	3.4	1.11	3620
61F6	23.4	4.3	1.51	3600
61M62	30.4	3.3	0.99	3950
61M43	24.6	4.1	0.91	3670

\* Commercial varieties.

reported as "Scoville units," which indicate the amount of dilution required to eliminate the burning effect in the mouth and throat.

Color levels for the Shafter materials, and some of the same lines grown in the Irvine area of Orange County, compared in Table 2, show pigment development to be favored by cooler coastal climates. Pungency levels of materials in the two locations were not compared directly. However, powders produced from the Shafter plantings were, in general, more pungent than powders obtained from chili lines grown on the coast.

The evaluation of chili peppers in Kern County and other inland areas will be continued in 1963, utilizing selections from 1962 and new lines as test materials.

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TABLE 2. RED COLOR AND PUNGENCY OF DRIED CHILI POWDERS

Variety or breeding line	Shafter		Orange County		% difference (ppm basis)	Pungency Scoville units
	Color level		Color level			
	ppm	Lovibond†	ppm	Lovibond†		
<b>MEXICAN CHILI</b>						
60M1	4120	30.6	5140	36.1	24.8	900
60M2	4140	30.7	4930	35.0	19.1	1500
60M3	3500	27.3	4800	34.2	37.1	2300
60M4	4220	31.1	4840	34.5	14.7	1600
60M5	3890	29.4	4610	33.2	18.5	1300
56M190	2830	23.7	....	...	...	1000
<b>CALIFORNIA CHILI</b>						
*Lang	2960	24.4	3410	27.8	9.3	3600
*516	2720	23.1	....	...	...	Sweet
61F6	3220	26.3	4320	31.7	20.0	3600
61M62	3510	27.3	4500	32.6	13.9	....
61M43	4220	31.1	....	...	...	1000

\* Commercial varieties.

† Lovibond units represent the value of numbered red and yellow glass plates required to match the red color of pepper extracts in a Lovibond tintometer.