This is the second Boysenberry cost study made in San Bernardino County. Copies of the 1949 study can be had from the Farm Advisor, 566 Lugo Avenue, San Bernardino.

Five farmers kept track of their costs of raising berries. Cash expenses, hired labor, interest on money invested in the berry field, depreciation, and the value of the labor done by the berry grower and his family are included in the costs.

Berry fields in this study ran from 1 to 8 acres in size. On the following pages you will find a breakdown and analysis of the costs. A weighted average of all records is also included.

The five growers in this study had a total of just under eighteen acres of berries. Because eighteen acres is about 5% of the total acreage in the county, we cannot say for sure how accurately the costs in the study represent the average costs for the whole county.

However, growers in this study ranged from 2 to 5-3/4 tons per acre in production, and their average production of 7,772 pounds per acre does not differ greatly from the usual county average. Thus it is reasonable to believe that the costs shown here are typical costs that many of our growers have to bear.

While exact income figures were not obtained from all growers, it is known that a great many of the berries produced in this county returned about 54¢ per 8 pound tray after the selling commission and hauling to the Los Angeles market was paid.

Summarized and Analyzed by:

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YIELD, COST PER ACRE, AND COST PER POUND VARIED GREATLY

GROWER NUMBER	POUNDS PER ACRE	COST PER ACRE	COST PER POUND
1.	11,457	$1,126.87	9.84 ¢
4.	9,386	887.47	9.46
Average	7,772	855.39	11.01
7.	6,238	982.19	15.75
3.	5,672	808.77	14.26
9.	3,832	634.38	16.56

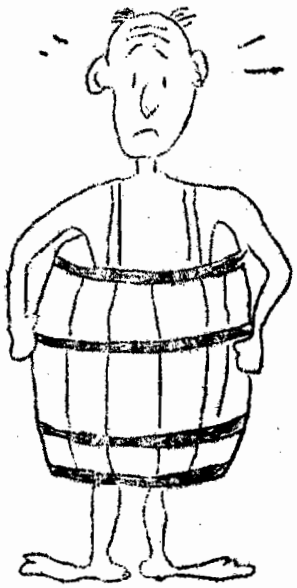
When you grow more berries per acre, some of your expenses increase, because you spend more to pick the extra berries. You also need more trays and baskets to hold the berries, etc.

Although you have to spend more per acre when you increase production, your cost per pound tends to get smaller.

Note that number 9 had the lowest cost per acre, but the highest per pound.

Number 4 had a high cost per acre, but the lowest cost per pound. He was the most efficient farmer in this study.

Part of the cost variation is due to marketing. It costs more to pack berries for fresh market. No two growers divided their crop the same way between fresh and canned. (See page 6).



High Cost, Low Production-Does this.

One more point:

It is possible to spend too much money while getting high production.

Notice number 1 had the most berries per acre, but was not the most efficient grower; his cost per pound was above farmer number 4's.

WHERE DOES THE MONEY GO?

Irrigation Expenses

Grower Number	Number Irrigations	Acre Inches Per Acre	Water Cost Per Acre	Labor Cost Per Acre	Yield Per Acre	Total Costs Per Acre
7	25	107	$ 99.00	$ 90.95	6,238#	$189.95
9	40	81	62.98	69.19	3,832	132.17
1	35	71	62.33	60.67	11,457	123.00
3	27	50	45.00	42.50	5,672	87.50
4		40	35.84	30.28	9,386	66.12
Average			$ 51.71	$ 50.10	7,772	$101.81

Some folks waste water by using too much. If all the water used by number 7 were applied to dry, sandy soil at once, it would soak down over a hundred feet deep!

Field observations indicate that frequent watering is needed, especially on sandy soil, in hot weather.

But even large walnut trees do not need over 50 acre inches of water.

Of course, when you must buy water on a regular delivery schedule, you cannot do much to change delivery days and amounts according to the weather and actual soil water content.

Yet the situation is not hopeless. Let's look at our grower number 7. If he used 107 inches in 25 irrigations, he was putting on over 4¼ acre inches of water per irrigation. (An acre inch is about an hour run in the Bloomington and Fontana water companies).

Now 4¼ acre inches would saturate his sandy loam soil four feet deep, if it were completely dried out when the irrigation began. It is very unlikely that this much water was needed, except perhaps at the first irrigation in the Spring when the winter rain stored in the top few feet of soil had been used up.

Dig down and see what your soil looks like before and 48 hours after you irrigate. Some will find that they can use fewer hours of run per acre without hurting anything. Few will want to go more than 5 to 7 days between irrigations in hot weather, though.

Not only the AMOUNT of fertilizer you use, but the KIND makes a difference in your costs...

GROWER	FERTILIZER	AMOUNT PER ACRE	FERT. COST PER ACRE	LABOR PER ACRE	TOTAL $ PER ACRE	TOTAL LBS. NITROGEN PER ACRE
1	Manure	319 Cu. ft.	$ 21.40	$16.10		Over 200
	Ammonia	53 Lbs.	5.42	—	$45.30	42
	Liquid 6-9-6	1-3/4 Gal.	2.38	—		9
4	Manure	150 Cu. ft.	12.50	6.50		96
	Ammonia	75 Lbs.	8.25	—		62
	Liquid 0-10-10	3-1/8 Gal.	4.06	—	31.31	None
9	Ammonia	144 Lbs.	19.14	—	19.14	118
7	Manure	210 Cu. ft.	10.50	34.00		120
	0-10-10	5 Gal.	6.75	—	51.25	
3	None			—	—	

Because nitrogen is the only element that we need to fertilize berries in San Bernardino County, money spent on phosphate and potash is wasted.

Manure helps improve the water penetration and tilth of the soil. Thus it is worth more than the theoretical value of the nitrogen it contains. Its benefits often last several years. However, we have no way of figuring the exact value of manure.

Besides its direct cost, manures have a high labor of application cost.

Fertilizers that are applied in the irrigation water save you a labor cost.

Most liquids cost you far more than the same kind of fertilizer in the dry form.

Ammonia is an exception. Considering application costs, ammonia applied in the water is about the cheapest fertilizer at present prices. A poor job of irrigating will result in a poor job of applying liquid fertilizers evenly.

From inspection of the table above, it is obvious where considerable savings can be made without using any less nitrogen per acre.

HERE ARE SOME OTHER COSTS...

Grower	Vine Pruning, Putting up, Suckering, etc. Per Acre.	Picking Per Pound	Hauling Per 100 Pounds
1.	$167.27	2.77 ¢	$ — sold f.o.b.
3.	161.13	3.26	—
4.	137.26	2.77	.02
9.	120.40	2.41	.11
7.	109.10	3.53	.07
Average	137.05	2.77	.03

It is hard to get at the particular reasons for the variation in these costs. One man will have heavier vines, and it costs more to put them up on wire. Yet the same man may have a heavier yield and will have less trouble keeping pickers. Folks with light yields may have to pay pickers more in order to hold them.

Then, too, one person will be a better bargainer, or maybe just luckier than his neighbor.

Distance over which berries are hauled makes some difference, of course. Also, the many who make many trips with a few flats of berries will spend more per pound than the fellow who takes heavier and fewer loads.

WHAT IT COSTS PER ACRE FOR DIFFERENT THINGS

Grower	Lbs. Yield Per Acre	Labor and Field Power: Pre-Harvest	Harvest	Total Labor	Material (all)	Cash Overhead	Total Cash Costs	Depreciation	Interest on Investment	TOTAL ALL COSTS	Percent Sold: Fresh	Canned
1.	11,457	$266.74	$398.14	$664.88	$149.06	$54.11	$959.69	$118.61	$ 48.57	$1,126.87	86	14
3.	5,672	236.53	226.75	463.28	93.15	42.41	643.84	115.46	49.47	808.77	100	
4.	9,386	205.92	286.46	492.38	134.70	45.01	732.74	109.73	45.00	887.47	79	21
7.	6.238	270.75	302.52	573.27	76.57	53.96	824.25	111.50	46.44	982.19	66	34
9.	3,832	211.99	116.28	328.27	21.37	35.65	474.58	113.05	46.75	634.38	30	70
Average	7,772	222.62	254.01	476.64	99.61	44.19	696.51	112.49	46.39	855.39	74	26

Labor and power costs include the value of work done by the farmer and his family, as well as hired work, figured at regular farm wage rates.

Irrigation water is the biggest single item under materials. Farms that sold most of their berries to fresh market had higher materials costs too. Each 8 pounds of berries for the fresh market has a cost of 6-3/4¢ for baskets, and the tray which is worth about 5¢ is not returned.

Berries sold to the canner are put in a tray which is used over and over. A 1¢ liner is used with the tray, and is good for two or three trips sometimes.

"Cash Overhead" includes taxes, repairs, and insurance. Also, 5% of the total labor and material cost is computed and added in to cover such expenses as errands, telephone calls, and small things generally overlooked in record keeping.

Depreciation was figured on the basis of 7 crops from a berry field, and a cost of $750 to plant and bring an acre into production.

Interest was figured at 5% of one half of the original cost of the items involved. (Except land).

Land was valued at $400-500 per acre. These figures are a compromise between the market price for the land and its probable farm value based on its agricultural earning power.

BOYSENBERRY - 1950

San Bernardino County
Agricultural Extension Service
University of California
G. A. Bowman, Farm Advisor

WHAT DOES IT COST YOU TO GROW BOYSENBERRIES?

Based on yield of 8,000# per acre - for canning or freezing

ITEMS	SAMPLE COSTS		YOUR COSTS	
	PER ACRE	PER CWT	PER ACRE	PER CWT
Cultural labor and field power				
Cultivation and furrow - 6 x	18.00			
Irrigation - 30 x	50.00			
Hoeing & weeding - 1 x	2.00			
Fertilizing - 2 x	2.50			
Pest Control				
Pruning & brush disposal - 1 x)				
Sucker or pinning back - 1 x :	150.00			
Putting up canes - 1 x)				
Miscellaneous	2.00			
TOTAL CULTURAL LABOR	224.50	2.80		
Material				
Irrigation water - 50"	45.00			
Fertilizer - 100# N	24.00			
Flats & liners	10.00			
Miscellaneous	2.50			
TOTAL MATERIALS	81.50	1.02		
Harvest Labor & field power				
Picking - 3¢	240.00			
Hauling & Miscellaneous - ½¢	20.00			
TOTAL HARVESTING	260.00	3.25		
Cash over head costs				
General expense 5%	28.30			
Taxes	11.25			
Insurance	2.50			
TOTAL CASH OVER HEAD	42.05	.53		
Depreciation				
Vines & Trellis	107.14			
Irrigation & Equipment	5.35			
TOTAL DEPRECIATION	112.49	1.41		
Land, Interest on Investment	46.39	.58		
TOTAL ALL COSTS	766.93	9.59		

The above estimated costs are based on conditions typical of the Bloomington area. Estimate your own costs by filling in the last two columns. 4.131

BOYSENBERRY PRODUCTION

Boysenberries seem to do all right on any texture soil, whether sandy or clay. Spacings on the order of 4 feet by 7 or 8 feet are suggested.

FERTILIZER: Fertilize with about 160 pounds of actual nitrogen per acre per year. This can be distributed as ammonia gas in the water in several applications, or as dry fertilizer such as ammonium sulfate drilled in about one foot from the plants on both sides of the rows. Put half of the fertilizer on about March first, and half, soon after the crop is taken off.

PRUNING: In the spring, new growth pushes out from the ground. Most commercial growers cut off this new growth a week or two before picking begins. Others pull this new growth tight along the rows and pin it in place with stakes or wire U's. Bigger plants will be produced if the growth is not cut off.

After harvest, the canes which bore the crop are cut off. The new growth which came out during the spring and picking season is then put up on the wires. This new growth will bear next year's crop.

One good pruning system is the "hedge" system. It is essential that the spring suckers NOT be cut off if you use this system. After the crop is harvested, IMMEDIATELY cut off the old canes, pinch off a few inches from the ends of the new growth, and put it up on the trellises. Then in late fall or winter you will find many side shoots have developed from the pinched canes. These side shoots are cut back to 8-10 inches long before growth starts again in the spring.

IRRIGATION: Irrigation at the rate of about 50 acre inches per acre for the year is required. Most farms have the best success with frequent irrigations --as often as every 4 or 5 days during hot weather on sandy soils. The ground should be kept moist all year. Some winters, this will require an occasional irrigation, especially if weeds are growing in the berry field.

Berries will have roots within a few inches of the surface if properly irrigated. For this reason, do not cultivate any deeper than you have to. The shallowest cultivation that will kill weeds is best.

MARKETING: Costs shown on the other side are for processing berries. Berries for fresh market will cost more because you will have to buy baskets and your trays will not be returned. There is also a 15% sellers' commission when berries are sold in the terminal markets.