



Corn
Production
Costs
in
California

Division of Agricultural Sciences
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AN ANALYSIS OF CORN PRODUCTION COSTS IN CALIFORNIA

Corn Production in California

California produces less than one percent of the United States' corn crop and in 1973 ranked 23rd among the states in corn production. However, the acreage in California increased 2.25 times from 1964 to 1974, indicating the interest of growers in this crop. Corn has not been an important crop in California because there have been more profitable alternatives.

New developments in close row planting and better information on fertilizer and irrigation requirements are increasing yields to the point where corn may compete successfully with other field crops. This publication presents available information on the economics of corn production so you can make a more intelligent analysis of the situation.

There were about 241,000 acres of corn harvested for grain in California in 1974 producing an income of \$103.1 million. Corn acreage increased from 30,000 acres in 1948 to 216,000 acres in 1957 but then declined to 77,000 acres in 1962.

Yields have increased from an average of 1,900 pounds in 1945 to 5,992 pounds in 1974. This was the highest record for California.

Corn is usually grown in about 30 of the 57 counties of California but 8 counties account for over 75 percent of the production. Nearly 95 percent of the production is in the Central Valley.

Corn in the Feed Grain Picture

California produced about 43 percent of the corn used in the state during the period 1966-73 which means that 57 percent of the corn used was brought into the state from other areas. Total corn consumption in the state is only 20 percent of the feed grain usage however. Increased corn production in the state will have to be marketed either by the reduction of inshipments of corn, a reduction in the production of other feed grains, or an increase in consumption. A short-time analysis of the feed grain picture is given in the following table:

CORN PRODUCTION AND CONSUMPTION IN CALIFORNIA

Year	Corn			Total feed grain consumption tons
	Production	Consumption	Net in-shipment	
				tons
1966	463,680	801,504	337,824	5,913,785
1967	517,440	914,558	397,118	6,894,244
1968	492,000	858,000	366,000	6,204,000
1969	500,000	1,006,000	506,000	6,769,000
1970	593,000	1,147,000	554,000	6,792,000
1971	663,000	1,113,000	585,000	6,182,000
1972	602,000	1,885,000	1,140,000	6,759,000
1973	691,000	2,569,000	1,987,000	6,744,000
Average	565,265	1,286,758	734,118	6,532,251
Percent	43	100	57	--

Source: Federal-State Market News Service, Grain, California Market Summary, Annual Issues, Sacramento.

Profitability of Corn

The cost studies available on corn and the average prices received as summarized in the following table indicate the main reasons for the current interest in corn production in California. The high yields typical of some of the counties plus the current price levels indicate the possibilities of a profitable crop.

County	Year	Yield	Price	Value per acre		
				Income	Cost	Net
Sacramento - organic soil	1975	8,000	\$5.00	\$400	\$324.25	\$75.75
- mineral soil	1975	8,000	5.00	400	410.09	10.09
Butte - silty loam	1975	7,000	5.50	385	352.72	32.28
- deep loams & clays	1975	8,000	5.50	440	409.82	30.18
Sacramento Valley	1974	8,000	5.35	428	350.00	78.00
Colusa	1973	7,000	5.25	367.50	212.00	155.50

CALIFORNIA ACREAGE, YIELD, PRODUCTION, AND VALUE OF CORN
1945-74

Year	Acreage harvested 1,000 acres	Yield per acre pounds	Production 1,000 tons	Average price received by farmers \$ per cwt.	Farm value \$1,000
1945	29	1,900	28	2.54	
1946	32	1,960	31	3.04	
1947	27	1,960	26	4.98	
1948	30	2,040	31	3.10	
1949	31	2,240	35	2.75	1,910
1950	42	2,410	51	3.34	3,377
1951	30	2,630	80	3.88	3,060
1952	39	2,690	52	3.48	3,650
1953	37	2,580	48	3.28	3,132
1954	103	3,190	164	3.28	10,803
1955	184	3,696	340	2.80	19,066
1956	173	4,032	349	2.93	20,428
1957	216	4,144	448	2.48	22,218
1958	176	3,920	345	2.54	17,494
1959	167	3,976	332	2.50	16,600
1960	130	4,032	262	2.46	12,917
1961	91	4,032	184	2.41	8,845
1962	77	4,312	166	2.48	8,241
1963	98	4,312	211	2.61	11,017
1964	107	4,592	246	2.64	12,986
1965	144	4,984	359	2.57	18,455
1966	180	5,152	464	2.70	25,006
1967	220	4,704	517	2.36	24,394
1968	185	5,320	491	2.43	23,902
1969	194	5,152	500	2.57	25,701
1970	216	5,488	592	2.86	33,869
1971	264	5,264	695	2.64	36,728
1972	215	5,600	602	3.21	39,775
1973	235	5,880	691	5.36	76,739
1974	241	5,992	722	7.14	103,148

Source: California Crop and Livestock Reporting Service, California Field Crops Statistics, Annual Issues, Sacramento.

Summary of Corn Cost Studies in California

The corn cost studies summarized in this report are those which have been made in California from 1973 to 1975. Farm advisors in four of the major producing counties have prepared sample costs of production during this period. These costs are not presented as being averages for the counties but are representative of commercial farms with good management.

Estimated yields are usually above the county average but are those normally attainable with the management practices shown in the operations.

The studies use a wage rate which includes social security, compensation insurance, and other miscellaneous labor costs.

Fuel and repairs are based on standard rates of performance for the equipment used.

Material costs are considered as delivered to the ranch.

Management is charged at 5 percent of the gross income.

Investment is based on present replacement costs except for land which is valued at market price for agricultural purposes. Depreciation is figured on acceptable lengths of life and interest is charged at 7 or 8 percent of the average value.

SUMMARY OF CORN COST STUDIES IN CALIFORNIA, 1973-75

County	Year	Yield lbs.	Cost per acre							Cost per cwt.	Invest- ment per acre
			Cultural cash cost	Harvest	Cash over- head	Manage- ment	Depre- ciation	Interest	Total		
			dollars								
Sacramento - organic soil	1975	8,000	164.59	19.15	133.20	20.00	9.72	17.93	324.25	4.05	179
- mineral soil	1975	8,000	208.09	19.15	135.20	20.00	9.72	17.93	410.09	5.13	179
Butte - silty soils	1975	7,000	168.68	23.64	110.27	19.25	21.38	9.50	352.72	5.04	238
- deep loams & clays	1975	8,000	201.73	26.85	126.42	22.00	22.89	9.93	409.82	5.12	248
Sacramento Valley	1974	8,000	126.10	53.60	122.30	21.40	19.00	7.60	350.00	4.37	190
Colusa	1973	7,000	78.48	41.08	57.44	18.00	12.53	4.47	212.00	3.03	128

SAMPLE COST TO PRODUCE FIELD CORN ON ORGANIC SOIL
Sacramento County - 1975

Based on equipment for 1,000 acres. Yield: 8000 lbs./acre.

Operation	Date	Materials	Total cost/ acre dollars
<u>Cultural Costs</u>			
Flood every 3rd yr.	Sept.-Dec.	Bulldoze levee \$8	2.66
Disc 1x	March		2.00
Plow	March		2.00
Disc 2x	March		4.00
Landplane	March		4.00
Rip	March		2.00
Springtooth-float ringroller	March		3.00
Herbicide preplant, disc. 2x	April	Sutan, Lasso	18.00
Plant, fertilize, insecti- cide	Apr.-May	Seed 16# @ \$1.00	16.00
		Starter, 40 gal. 4-10-10	31.40
		Dyfonate 10 lbs./ac. \$.42/lb. 3" bed Application	.35 5.00
Spud ditch	May-June	\$25/mile 10¢/m/ac.	2.50
Irrigate 3x peat	June-Aug.		3.50
Acaricide		Kelthane \$7.01 3 pts. + air applica- tion \$3.00	10.01
Cutworm control		Sevin bait 30/ac. \$9.33 + air appli- cation \$3.00	12.33
Workman's comp.			2.00
Social Security			1.50
TOTAL CULTURAL COSTS			122.25
<u>Harvest Costs</u>			
Harvest & hauling 6 rows		Custom harvest \$30/ac.	15.00
Drying & handling		\$1.00/ton	4.15
TOTAL HARVEST COSTS			19.15
<u>Cash Overhead</u>			
Misc. office, etc.			1.00
Taxes on equipment			1.00
Rent		33.3% of gross	133.20
TOTAL CASH OVERHEAD			135.20
TOTAL CASH COSTS			276.60
Management 5% of 4 tons @ \$100			20.00
<u>Investment</u>	<u>Per acre</u>	<u>Annual Cost</u>	
Equipment	\$179	<u>Depreciation</u>	<u>Interest 8%</u>
Total		\$9.72	\$17.93
			27.65
TOTAL COST PER ACRE			324.25
TOTAL COST PER CWT			4.05

Source: Orr, Jack P. Sample Costs to Produce Field Corn. Sacramento: University of California Cooperative Extension. 1975.

SAMPLE COST TO PRODUCE FIELD CORN ON MINERAL SOIL
Sacramento County - 1975

Based on equipment for 1000 acres. Yield: 8000 lbs./acre

Operation	Date	Materials	Total cost/ acre dollars
<u>Cultural Costs</u>			
Disc 1x	March		2.00
Plow	March		2.00
Disc 2x	March		4.00
Landplane	March		4.00
Rip	March		4.00
Springtooth-float ringroller	March		3.00
Pre fertilizer		150 lbs./ac. Nitrogen + application	40.00
Herbicide preplant, disc 2x	April	Sutan, Lasso	14.00
Plant, fertilize, insecti- cide	Apr.-May	Seed 16# \$1.00/lb.	16.00
		Starter, 40 gal. 4-10-10	31.40
		Dyfonate 10#/ac., \$.42/lb. 3" bed Application	.35 5.00
Cultivate 2x	May-June	Sidedress 50#/ac. N. + application	16.50
Irrigate 9x	June-Aug.		40.00
Acaricide		Kelthane \$7.01 3 pts. + air appli- cation \$3.00	10.01
Cutworm control		Sevin bait 30#/ac. \$9.33 + air application \$3.00	12.33
Workman's comp.			2.00
Social Security			1.50
TOTAL CULTURAL COSTS			208.09
<u>Harvest Costs</u>			
Harvest & hauling 6 rows		Custom harvest \$30/ac.	15.00
Drying and handling		\$1.00/ton	4.15
TOTAL HARVEST COSTS			19.15
<u>Cash Overhead</u>			
Misc. office, etc.			1.00
Taxes on equipment			1.00
Rent		33.3% of gross	133.20
TOTAL CASH OVERHEAD			135.20
TOTAL CASH COSTS			362.44
Management 5% of 4 tons @ \$100			20.00
			27.65
<u>Investment</u>	<u>Per Acre</u>	<u>Annual Cost</u>	
Equipment	\$179	<u>Depreciation</u>	<u>Interest 8%</u>
Total		\$9.72	\$17.93
TOTAL COST PER ACRE			410.09
TOTAL COST PER CWT			5.13

Source: Orr, Jack P. Sample Costs to Produce Field Corn. Sacramento: University of California Cooperative Extension. 1975.

SAMPLE COSTS TO PRODUCE FIELD CORN
On Silty Loam Soils
Butte County - 1975

Operation	Hours per acre	Cash and labor cost per acre				Total
		Labor	Fuel & repairs	Materials Kind and quantity	Cost	
dollars						
<u>Cultural Costs</u>						
Stubble disc 2x	.50	2.13	6.75			8.88
Landplane 2x (every other year)	.30	1.28	3.95			5.23
Chisel or offset disc 2x	.32	1.36	4.53			5.89
Fertilize (inject N)	.20	.85	1.50	150 lbs. N/A (aqua) @ \$.22	33.00	
				Rent rig	1.00	36.35
Triplane	.20	.85	1.80			2.65
Prepare borders	.10	.42	.51			.93
Pre-irrigate	.50	1.62		8 ac. inches @ \$3.85/acre ft.	2.56	4.18
Harrow spiketooth	.10	.42	.54			.96
Harrow springtooth	.20	.85	1.44			2.29
Plant & apply starter fertilizer & bait	.33	1.40	2.24	Starter fert.	33.00	
				Seed	15.00	
				Bait	3.18	54.82
Cultivate 1x	.20	.85	1.24			2.09
Weed control 2/3 of acreage	.20	.85	1.08	Herbicide 2/3 of acreage	5.90	7.83
Mite control				Custom, airplane miticide	4.00	
					7.50	11.50
Irrigate 9x	2.25	7.31		3 ac.ft. @ \$3.85/A ft.	11.55	18.86
Misc. labor (downtime & move & service equipment)	1.00	4.25				4.25
Shred stalks	.20	.85	1.12			1.97
TOTAL CULTURAL COSTS		25.29	26.70		116.69	168.68
<u>Harvest Costs</u>						
Combine	.40	1.70	6.12			7.82
Bankout (hauling to roadside)	.40	1.70	1.20			2.90
Drying (3/4 of crop)				20% moisture @ \$4.50/ton	12.92	12.92
TOTAL HARVEST COSTS		3.40	7.32		12.92	23.64
<u>Cash Overhead</u>						
Misc., office, etc.					11.54	
Taxes & insurance					2.48	
Rent				25% x 7000#/A (15.5% moisture) = 1750# x \$5.50/cwt	96.25	
TOTAL CASH OVERHEAD						110.27
TOTAL CASH COSTS		28.69	34.02		239.88	302.59
Management 5% of 7000 lbs. @ \$5.50/cwt						19.25
<u>Annual Cost</u>						
<u>Investment</u>		<u>Per acre</u>		<u>Depreciation</u>	<u>Interest</u>	
Equipment & shop building		\$237.95		\$21.38	\$9.50	30.88
TOTAL COST PER ACRE						352.72
Cost per hundred at 7000 lbs/acre						5.04
NET PER ACRE AT 7000 lbs/A (15½% moisture) AT VARIOUS PRICES PER HUNDRED						
Price per cwt	\$5.00	\$ 5.50	\$ 6.00	\$ 6.50		
Net Income per acre	\$7.78	\$32.28	\$56.78	\$81.28		

Source: Sample Cost to Produce Field Corn, Butte County. Oroville: University of California Cooperative Extension. 1975.

SAMPLE COSTS TO PRODUCE CORN
Lower Sacramento Valley - 1974

Based on 200 acres of corn on a 1,000 acre ranch. Yield: 9,550 lbs. @ 18% moisture; 8,000 lbs. @ 12.5% moisture. Labor rates including fringe benefits \$3.50 and \$2.60 per hour.

Operation	Hours per acre	Cash and labor cost per acre				
		Labor	Fuel & Repairs	Materials Kind and Quantity		Cost
dollars						
<u>Cultural Costs</u>						
Stubble Disc	.3	1.15	2.70			3.85
Landplane	.3	1.05	2.05			3.10
Disc 2X	.3	1.15	2.30			3.45
Springtooth	.2	.50	.80			1.30
List & fertilize	.2	.90	1.70	150# N @ 20¢/#	30.00	32.60
Plant	.4	1.40	1.50	Seed	20.00	22.90
Fertilize				Starter 20 gal/acre	18.60	18.60
Irrigate 8X (1 pre-plant & 7 crop)	4.0	10.40	1.15	Water	8.00	19.55
Cultivate	.4	1.40	1.40			2.80
Weed control				Herbicide contract	6.50	6.50
Insect or mite control				Material contract	5.00	5.00
Misc. (move, set up & service equipment)	.7	2.35	1.00			3.35
Crop loan interest					3.10	3.10
TOTAL CULTURAL COSTS	6.8	20.30	14.60		91.20	126.10
<u>Harvest Costs</u>						
Combine				4.77 tons @ 5.00	23.85	
Hauling				4.77 tons @ 2.50	11.95	
Drying (renter's share)				3.0 tons @ 2.00	6.00	
Storage				2.62 tons @ 4.00	10.50	
Chop stubble	.2	.70	.60			1.30
TOTAL HARVEST COSTS		.70	.60		52.30	53.60
<u>Cash Overhead</u>						
Misc., office, etc.					13.40	
Taxes on equipment					1.90	
Rent				25% of 8,000# @ 5.35 cwt	107.00	
TOTAL CASH OVERHEAD						122.30
TOTAL CASH COST		21.00	15.20		265.80	302.00
Management 5% of 8,000 lbs. at \$5.35 cwt						21.40
<u>Annual Cost</u>						
<u>Investment</u>	<u>Per Acre</u>	<u>Depreciation</u>		<u>Interest 8%</u>		
Equipment	\$190	\$19.00		\$7.60		
Total						26.60
TOTAL COST PER ACRE						350.00
Cost per cwt @ 8,000 lbs. yield after shrinkage to 12.5% moisture						4.37

Cost of Production at Varying Yields

Yield per acre cwt:	40	60	80	100	120	140
Total production cost per cwt	\$7.85	\$5.54	\$4.37	\$3.67	\$3.21	\$2.88

Source: Petersen, R. T., J. P. Orr, J. F. Williams, T. E. Kearney, A. D. Reed, L. A. Horel. Sample Costs to Produce Corn in the Lower Sacramento Valley, 1974. University of California, Cooperative Extension. 1975.

SAMPLE COSTS TO PRODUCE CORN
Colusa County - 1973

Yield 7500 lbs. @ 18% moisture; 7000 lbs. @ 12.5% moisture. Labor rates: \$2.70/hr - tractor driver; \$2.25/hr - irrigator.

Operation	Hours per acre	Cash and labor cost per acre				Total
		Labor	Fuel & repairs	Materials Kind and quantity	Cost	
dollars						
Cultural Costs						
Fall stubble disc	.33	.90	2.20			3.10
Landplane	.25	.68	1.35			2.03
Disc 2x	.33	.90	1.68			2.58
Springtooth	.15	.40	.50			.90
List & fertilize	.30	.81	.94	160# N @ \$.08/#	12.80	14.55
Plant & apply starter fertilizer	.50	1.35	1.32	Seed Starter 20 gal/A	14.00 9.30	25.97
Irrigate 8x (1 preplant & 7 crop)	4.00	9.00	1.00	Water	8.00	18.00
Cultivate	.40	1.08	.82			1.90
Weed control	.20	.54	.41	Herbicide	.95	1.90
Insect or mite control	.20	.54	.41	Material	4.30	5.25
Miscellaneous (move, set up & service equip.)	.67	1.80	.50			2.30
TOTAL CULTURAL COSTS	7.33	18.00	11.13		49.35	78.48
Harvest Costs						
Combine				Contract @ \$4.50/undried ton	16.88	
Hauling				Contract @ \$2.00/undried ton	7.50	
Drying (renter's share)				Contract @ \$2.00/ton	5.25	
TOTAL HARVEST COSTS						29.63
Post-Harvest Costs						
Storage (5250 lbs.)				Contract @ \$4.00/ton	10.50	10.50
Chop stubble	.20	.54	.41			.95
TOTAL POST-HARVEST COSTS	.20	.54	.41			11.45
TOTAL HARVEST COSTS	.20	.54	.41			41.08
Cash Overhead						
Misc., office, etc.				6% of cash costs	7.16	
Taxes & insurance on equipment					1.80	
Rent @ 25% of gross					48.48	
TOTAL CASH OVERHEAD						57.44
TOTAL CASH COST		18.54	11.54		146.92	177.00
Management 5% of 7000 lbs. @ \$5.25/cwt						18.00
Annual Cost						
<u>Investment</u>	<u>Per acre</u>	<u>Depreciation</u>		<u>Interest</u>		
Buildings	\$ 5.00	\$.17		\$.17		
Equipment	122.94	12.36		4.30		
Total	\$127.94	\$12.53		\$4.47		17.00
TOTAL COST PER ACRE						212.00
Cost per cwt. @ 7000 lbs. yield after shrinking to 12.5% moisture with storage paid for the year						3.03

Source: Petersen, Robert, Sample Costs to Produce Corn in Colusa County. Colusa: University of California Cooperative Extension. 1973.

EQUIPMENT AND BUILDING LIST

Colusa County

Item	Original cost	Annual use (acres)	Cost per acre	Life (yrs.)	Depreciation
Crawler, diesel, 86 hp	\$ 36,200	1200	\$ 30.13	15	\$ 3.01
Crawler, diesel, (used) 60 hp	9,000	1200	7.50	10	.75
Wheel engine, diesel, 70 hp	10,450	800	13.06	10	1.31
Wheel engine, gas (used) 50 hp	4,000	800	.50	5	.10
Stubble disk, 10'	6,600	600	11.00	10	1.10
Subsoiler, 10'	3,600	600	6.00	10	.60
Landplane, 12' x 60'	4,800	600	8.00	15	.53
Disk, 18'	3,200	1200	2.67	10	.27
Springtooth, 24'	2,600	800	3.25	10	.32
Harrow, 32'	1,120	800	1.40	20	.07
Roller, 20'	2,500	800	3.12	20	.16
Lister, 4 row	1,000	400	2.50	10	.25
Fertilizer attachments	1,200	400	3.00	10	.30
Planter, 4 row	2,400	400	6.00	10	.60
Ditcher, 4'	1,600	800	2.00	15	.13
Cultivator, 4 row	1,200	400	5.00	10	.50
Sprayer	1,350	800	1.69	10	.17
Rotary chopper, 9'	1,550	400	3.88	10	.39
Tool carrier, 30'	2,100	1200	1.75	15	.11
Fuel wagon	700	1200	.58	20	.29
Truck (used) 1-1/2 ton	3,000	1200	2.50	10	.25
Pickup (new)	3,400	1200	2.83	5	.57
Pickup (used)	1,500	1200	1.25	5	.25
Shop building	6,000	1200	5.00	30	.17
Shop tools	4,000	1200	3.33	10	.33
Totals	\$115,070		\$127.94		\$12.53

Source: Petersen, Robert. Sample Costs to Produce Corn in Colusa County.
Colusa: Cooperative Extension University of California, 1973.

COOPERATIVE EXTENSION

UNIVERSITY OF CALIFORNIA

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