

**COST OF
PRODUCING
PRUNES -
NAPA
COUNTY
1966**

PREPARED BY

**John N. Fiske
Farm Advisor
Napa County**

**Burt B. Burlingame
Extension Economist
U. C., Berkeley**

**AGRICULTURAL EXTENSION SERVICE
University of California - Napa County
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NAPA COUNTY PRUNE PRODUCTION COST DATA SHEETS

INTRODUCTION

These cost data sheets are **SAMPLE COSTS ONLY**, assuming good land adapted to prunes and operated in accordance with good farm management practices. These sheets **DO NOT REPRESENT, NOR ARE THEY INTENDED TO REPRESENT, AVERAGE COSTS OR YIELDS FOR THE COUNTY.** Wide deviations from these sample costs frequently occur.

These cost data sheets are designed to provide Napa County prune growers with information regarding **SAMPLE** costs of prune production in this area on established orchards. They were prepared with the assistance of a committee of Napa County growers cooperating with the University of California.

Two sample cost data sheets are included. One is for a 40-acre, non-irrigated orchard with an assumed yield of 1.5 dry tons per acre, with a minimum amount of equipment, and without the inclusion of any special labor-saving devices. The second cost data sheet is for an 80-acre, irrigated prune orchard with an assumed yield of 2.5 dried tons per acre, and with a wider range of equipment, including some labor-saving devices for harvest that are typical of those being used in the area.

The reason mechanical aids to harvest were not included in the 40-acre data sheet is that it would be difficult, if not impossible, for the owner of a 40-acre orchard to amortize the cost of this relatively expensive equipment with the small amount of total expected production.

THE BASIS OF COST CALCULATIONS

Certain assumptions must be made as to size of orchard and yield per acre. This information is indicated on each of the sample cost sheets. Drying ratio was assumed at 2.5 to 1. Ordinary labor was figured at \$1.64 per hour and tractor labor at \$1.91 per hour, including compensation insurance and Social Security. Cash costs on tractors were figured at \$1.20 and \$1.60 per hour; on pickup and truck at \$2.00 per hour; on forklift at \$1.00 per hour and on sprayer at \$4.00 per hour. Interest and depreciation on these items are included in the depreciation and investment interest portions of the table.

Some operations such as pruning, spraying and harvesting were based on a piece work basis or at a commercial rate, when this was assumed to have been done by a contract operator.

When an operator owns the equipment needed for a given operation, the cash costs are usually less than when done by contract. However, the overhead of depreciation and interest on the equipment must be considered in figuring comparable total costs. For example, spray application on the 40-acre, non-irrigated orchard is shown as contracted cash cost of \$10 per acre compared to a cash cost on the 80-acre irrigated orchard of \$3.76 per acre.

However, when depreciation and interest on the owner sprayer and tractor are added to the \$3.76, a comparable total cost for the operation comes to approximately \$12 per acre. Even though the 80-acre operator has a higher total cost, he has the offsetting advantage of not having to rely on a contractor to get the spraying done at the right time.

When comparing harvesting costs between the two sample cost sheets, it should also be borne in mind that overhead of depreciation and interest on the harvester and tractor for the 80-acre orchard should be added to the cash cost.

COMPARE YOUR COSTS

Provision has been made in the cost data sheets to insert what you believe to be YOUR costs under each item. In this way you can compare your total costs with those of the sample sheets. In operations where your costs per ton exceed those of the study, possible adjustments might be made to reduce costs. Should your yield per acre be less with correspondingly higher costs, look for places in your operation that influence tonnage, such as pruning, irrigation procedure, bearing surface, spraying practices, and tree stand.

The real purpose of this study is to help you analyze your operation and improve it by comparing it with sample costs.

FROST PROTECTION

Frost protection has NOT been included as an item in either of these cost data sheets. The need for frost protection varies a great deal throughout Napa County and, indeed, may vary within the boundaries of any individual orchard. Also, the degree to which frost protection is needed may be quite variable.

You will find items labeled "frost protection" in the tables under cash costs, depreciation costs, and interest on investment, with no figures in the sample costs but space where you can enter them under your own costs. When only a portion of the orchard has frost protection, such costs on a per acre basis would usually apply only to the acreage protected. An average for the entire acreage could also be calculated in arriving at average total costs for all prunes produced in your orchard. Frost protection can be justified only on the basis of returns from higher yields over a period of years at least offsetting such increased costs.

MONTHLY CASH FLOW SHEET

On the reverse side of each of the sample cost data sheets, you will find a sheet entitled "Monthly Cash Flow Per Acre." This sheet is designed to give the grower a general idea of the cash costs as they accrue from the beginning to the end of the season.

The total cash costs in the first column have been obtained from the sample costs per acre on the front of the sheet. These cash costs have then been distributed in the months that the operation is normally performed. In this way, the grower can obtain an approximate idea as to the amount of money that will be required, month by month, during the season up to and including the harvesting of the crop.

This sheet will provide useful information on the approximate need for production capital as the season progresses. This may either be the grower's own, or borrowed. If funds need to be borrowed for production purposes, this will give the lending agencies an approximate idea of capital needs required during the season.

Note that some money is needed in most months but, of course, the heavy expense will come during September, or whenever the crop is harvested.

The last two lines at the bottom of the sheet have been left blank. The first line, entitled "Your Income" can be used to estimate with your lending agency the approximate months and the amounts expected as income. By deducting these amounts from the accumulated cash flow at that time, the net cash cost can then be determined for any month, on the bottom line.

This cash flow sheet does not carry any provision for putting aside cash reserves for replacement of capital equipment. The amount needed will vary greatly between operators, depending on age and condition of equipment. Individuals can use one of the blank lines provided for this purpose. This will, of course, then change the totals.

No provision has been made for interest charges on borrowed capital in the cash cost. One of the other blank lines might be used for this purpose, inserting it in the months the interest is due.

SAMPLE COSTS TO PRODUCE PRUNES IN NAPA COUNTY - IRRIGATED - 1966

Based on an 80-acre orchard with a yield of 2.5 dry tons per acre. Drying ratio 2.5 to 1. Man labor at \$1.50, plus Social Security and Compensation Insurance, .14=\$1.64 per hour, and \$1.75, plus Social Security and Compensation Insurance, .16=\$1.91 per hour. Cash costs per hour: 30-40 HP wheel and crawler tractors \$1.20 and \$1.60, fork lift @ \$1.00, truck @ \$2.00, and sprayer @ \$4.00.

	Sample Costs		Your Cost	
	Per Acre	Per Ton	Per Acre	Per Ton
PRE-HARVEST CASH COSTS:				
Prune: 75 trees @ 75¢	\$ 56.25			
Brush disposal: 1.8 man & 0.6 tractor hr.	3.84			
Fertilize: 0.4 man & 0.2 tractor hr.	.95			
Fertilizer: 80 lbs. N @ 11¢	8.80			
Spraying: 2 times - ½ hr. - man, tractor & sprayer	3.76			
Spray material	14.00			
Irrigate: 3 times - 4½ man hrs.	7.38			
Water: power to apply 12 inches	8.60			
Cultivate: 4 hrs. man & tractor	14.04			
Prop, tie & wire: 4 man & 2 truck hrs.	11.10			
Misc. labor: 4 man, 1 tractor & 1 truck hr.	10.30			
Misc. material	5.00			
County taxes	33.25			
Office, car, int. on oper. capital, etc.	16.75			
Repairs except tractors, truck and sprayer	6.50			
*Frost protection				
TOTAL PRE-HARVEST CASH AND LABOR COST	\$200.52	\$ 80.21		
HARVESTING AND DEHYDRATION COSTS:				
Shake & catch with harvesting unit; load with fork lift; 2 times over; 18 M & 3 hrs. TR & fork lift	38.94	15.58		
Clean up by hand; 8½ boxes @ \$1.00	8.25	3.30		
Haul: 2 hrs. man & truck \$7.82; Bin rental @ 75¢/ton \$4.69	12.51	5.00		
Dehydrate @ \$14 per fresh ton	87.50	35.00		
TOTAL HARVESTING AND DEHYDRATION	\$147.20	\$ 58.88		
TOTAL CASH AND LABOR COST	\$347.72	\$139.09		
DEPRECIATION COSTS:				
Trees: cost \$1269 - 30 yr. lift	\$ 42.30			
Buildings for equip.: \$50, 25 yrs; housing \$75, 30 yrs.	4.50			
Sprinkler irrigation facil.: cost \$240	15.00			
Tractors, trucks & fork lift: cost \$170, 8½ yrs.	20.00			
Sprayer: \$70, 14 yrs; harvester \$60, 5 yrs.	17.00			
Other equipment & shop: cost \$50, 10 yrs.	5.00			
*Frost protection equipment				
TOTAL DEPRECIATION COST	\$103.80	\$ 41.52		
TOTAL CASH AND DEPRECIATION COST	\$451.52	\$180.61		
INTEREST ON INVESTMENT @ 6%:				
Trees: on ½ cost (\$635)	38.10			
Buildings for equip. & housing; on ½ cost (\$62.50)	3.75			
Sprinkler irrig. facil.: on ½ cost (\$120)	7.20			
Tractors, trucks & fork lift: on ½ cost (\$85)	5.10			
Sprayer: ½ cost (\$35); harvester: ½ cost (\$30)	3.90			
Other equipment & shop: on ½ cost (\$25)	1.50			
*Frost protection equipment on ½ cost				
Land at \$1,000	60.00			
TOTAL INTEREST ON INVESTMENT COST	\$119.55	\$ 47.82		
TOTAL COST OF PRODUCTION	\$571.07	\$228.43		

* See note on frost protection in text.

MONTHLY CASH FLOW PER ACRE FOR PRUNES - 80 Acre Irrigated.

NAPA COUNTY 1966.

Operation	Total/A	Month											
		Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
Cultural costs:													
pruning	56.25	18.75	18.75	18.75									
brush disposal	3.84			3.84									
fertilize: labor & mat.	9.75				9.75								
spray: labor & mat.	17.76		8.88						8.88				
irrigate: labor & power	15.98							.50	4.83	4.83	.50	.50	4.82
cultivate: labor & tractor	11.04					8.00				6.04			
prop. tie, wire	11.10									11.10			
misc. labor & mat.	15.30				7.65				7.64				
repairs	6.50		6.50										
frost protection						?	?						
Harvest costs:													
shake & catch	38.94												38.94
clean-up	6.25												8.25
bin rental & haul to dehydrator	12.51												12.51
Cash overhead:													
miscellaneous	16.75				8.00							8.75	
taxes	33.25		16.62				16.63						
rent													
Total cash cost	347.72	18.75	50.75	22.59	25.40	8.00	16.63	.50	21.36	21.97	9.25	147.70	4.82
Income													
Net cash cost													

SAMPLE COSTS TO PRODUCE PRUNES IN NAPA COUNTY - NON-IRRIGATED - 1966

Based on a 40-acre orchard with a yield of 1.5 dry tons per acre. Drying ratio 2.5 to 1. Man labor at \$1.50, plus Social Security and Compensation Insurance, .14-\$1.64 per hour, and \$1.75, plus Social Security and Compensation Insurance, .16-\$1.91 per hour. Tractor per hour cash cost at \$1.20, fork lift @ \$1.00 and pickup at \$2.00.

	Sample Costs		Your Cost	
	Per Acre	Per Ton	Per Acre	Per Ton
PRE-HARVEST CASH COSTS:				
Prune: 75 trees @ 50¢	\$ 37.50			
Brush disposal: 1.2 M & 0.4 TR hrs.	2.55			
Fertilize: 0.4 M & 0.2 TR hrs.	.95			
Fertilizer: 60 lbs. N @ 11¢	6.60			
Spraying: 2 times - contract 400 gal. @ 2 ⁵⁰ / ₁₀₀	10.00			
Spray material	14.00			
Cultivate: 3 hrs. man & tractor	9.33			
Prop, tie & wire: 3 M & 1 ¹ / ₂ TK hrs.	8.33			
Misc. labor: 3 M, 1 TR & 1 TK hr.	8.66			
Misc. material	4.00			
County taxes	30.00			
Office, car, int. on oper. capital, etc.	13.75			
Repairs except tractor & pickup	3.75			
*Frost protection				
TOTAL PRE-HARVEST CASH AND LABOR COST	\$149.42		\$ 99.61	
HARVESTING AND DEHYDRATION COSTS:				
Shake: 2 times - @ \$11.00/hr.	18.50		12.33	
Pick from ground @ \$13/ton (fresh)	48.75		32.50	
Move bins & load 1 ¹ / ₂ man @ 3/4 fork lift hr.	3.41		2.27	
Haul @ \$3.50/ton, \$13.13; Bin rental @ 75¢/ton, \$2.81	15.94		10.63	
Dehydrate @ \$14 per fresh ton	52.50		35.00	
TOTAL HARVESTING AND DEHYDRATION	\$139.10		\$ 92.73	
TOTAL CASH AND LABOR COSTS	\$288.52		\$192.34	
DEPRECIATION COSTS:				
Trees: cost \$1,050 - 30 yr. life	35.00			
Buildings: \$100 - 25 yrs.	4.00			
Tractor and pickup: \$150 cost - 10 yrs.	15.00			
Other equipment: \$100 cost - 10 yrs.	10.00			
*Frost protection equipment				
TOTAL DEPRECIATION COST	\$ 64.00		\$ 42.67	
TOTAL CASH AND DEPRECIATION COST	\$352.52		\$ 235.01	
INTEREST ON INVESTMENT @ 6%:				
Trees: on 1/2 cost (\$525)	31.50			
Buildings: on 1/2 cost (\$50)	3.00			
Tractor and pickup: on 1/2 cost (\$75)	4.50			
Other equipment: on 1/2 cost (\$50)	3.00			
*Frost protection equipment on 1/2 cost				
Land @ \$1,000	60.00			
TOTAL INTEREST ON INVESTMENT COST	\$102.00		\$ 68.00	
TOTAL COST OF PRODUCTION	\$454.52		\$303.01	

* See note on frost protection in text.

MONTHLY CASH FLOW PER ACRE FOR PRUNES - 40 Acre, Non-irrigated

NAPA COUNTY 1966

Operation	Total/A	Month											
		Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.
Cultural costs:													
pruning	37.50	12.50	12.50	12.50									
brush disposal	2.55			2.55									
fertilize:labor & mat.	7.55				7.55								
spray lbaor & mat.	24.00		12.00						12.00				
cultivate	9.33					5.00				4.33			
prop,tie,wire	8.33										8.33		
misc. labor	8.66				4.33				4.33				
misc. material	4.00				2.00				2.00				
repairs	3.75		3.75										
frost protection						?	?						
Harvest costs:													
shake	18.50											18.50	
pick	48.75											48.75	
move bins & load	3.41											3.41	
haul to dehydrator	15.94											15.94	
dehydrate	52.50											52.50	
Cash overhead:													
miscellaneous	13.75				7.50						6.25		
taxes	30.00		15.00				15.00						
rent													
Total cash cost	288.52	12.50	43.25	15.05	21.38	5.00	15.00		18.33	12.66	6.25	139.10	
Income													
Net cash cost													

YIELD AS RELATED TO COST

Yield per acre is one of the most important factors in determining cost per ton. The following tables show how the cost per acre and the cost per ton will vary under different assumed yields. You should note that while the cost per acre increased with higher yields, the cost per ton of prunes produced decreases. You will also note that as a grower you are faced with certain fixed operating costs, regardless of yield. The increased costs per acre are almost entirely the result of harvesting costs.

In the 40-acre sample orchard, total cost per acre and per ton are computed on an assumption of 1.5 dry tons to the acre. The following table shows what these costs would approximate with two assumed lower yields and two assumed higher yields.

Yield in Dry Tons per Acre . . .	1.0	1.25	1.50	1.75	2.00
All Costs Except Harvesting	\$ 315.42	\$ 315.42	\$ 315.42	\$ 315.42	\$ 315.42
Harvesting cash costs	98.90	119.00	139.10	159.20	179.30
Total Cost per Acre	\$ 414.32	\$ 434.42	\$ 454.52	\$ 474.62	\$ 494.72
Total Cost per Ton	\$ 414.32	\$ 347.54	\$ 303.01	\$ 271.21	\$ 247.36

In the 80-acre sample orchard, total cost per acre and per ton are computed on an assumption of 2.5 dry tons per acre. The following table shows what these costs would approximate with two assumed lower yields and two assumed higher yields.

Yield in Dry Tons per Acre	1.5	2.0	2.5	3.0	3.5
All Costs Except Harvesting	\$ 423.87	\$ 423.87	\$ 423.87	\$ 423.87	\$ 423.87
Harvesting cash costs	103.89	125.54	147.20	168.84	190.49
Total Cost per Acre	\$ 527.76	\$ 549.41	\$ 571.07	\$ 592.71	\$ 614.36
Total Cost per Ton	\$ 351.84	\$ 274.71	\$ 228.43	\$ 197.57	\$ 175.53

Any price you receive for your fruit above the costs as computed here is management income. Any tasks you are able to perform yourself will provide you with labor income. A combination of these two, along with interest charged on your equity in the business will provide you with some measure of your total earnings from the enterprise.

QUALITY CONTROL

While high yields per acre are important in reducing production costs per ton, it is important to remember that price per ton is dependent on quality. A prune grower may have high yields but if quality is sub-standard, he may still lose money on the crop.

Quality is controlled by good management practices including especially proper attention to pruning to make certain that the fruit is properly distributed throughout the tree and that new fruit wood is continuously being produced. In addition, adequate spraying for pest and disease control and proper maintenance of moisture levels are important factors in both the quality and size of the fruit.

Harvesting, drying, and storing fruit is the area which is most demanding of growers if quality is to be maintained. Fruit must be ripe, yet not overripe. Shaking in a manner to prevent splitting and careful handling from the orchard to the dehydrator fit into this scene. Major size differences require different dehydration practices.

The crop needs to be harvested with the highest sugar content possible; however, soft, overripe fruit in the orchard means a lower quality in the finished product.