

**COSTS FOR
ESTABLISHING AND PRODUCING
FRENCH PRUNES FOR DRYING
Southern San Joaquin Valley - 1989**

Prepared by:

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1. YIELD:

The onset of economic bearing is the 4th year following planting. The following annual yields can be assumed until full bearing.

<u>Yield</u>	1	2	3	<u>Year</u>	5	6	7	Mature
<u>Dry Ton/Acre</u>				4	.75	1.5	2.0	4.0

2. ACREAGE:

Orchard size is 50 acres of which 2.5 acres are used for roads and burn areas. This leaves 47.5 producing acres.

3. SPACING:

Trees are spaced 20'x20' - 108 trees per acre.

4. VARIETIES:

The "French Prune" is grown in this orchard. It is the standard variety used for drying.

5. IRRIGATION:

The orchard is flood irrigated between borders in the tree row. Flood irrigation is assumed to be 70% efficient.

<u>Year</u>	<u>Acre feet/Year</u>
1	1.4
2	1.4
3	2.1
4	2.1
5+	2.9

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6. **FERTILIZATION:**

Nitrogen is considered the only element requiring annual soil application for this study. Zinc is applied annually as a separate fall spray. Nitrogen is assumed to cost \$.33 per pound. The rate of nitrogen applied is as follows:

<u>Year</u>	<u>Lbs/Acre</u>
1	12
2	12
3	24
4	24
5	24
6	75
7+	100

7. **PESTICIDES:**

This study assumes one dormant insecticide spray is applied annually following year 1 and one bloom time fungicide is applied following year 5.

8. **PRUNING:**

Detailed pruning to renew fruit wood is done annually. Young orchards are intensively trained.

9. **HARVEST & PROCESSING:**

The mechanized harvest is contracted to pick (\$32/fresh ton) and haul (\$8/fresh ton) the prunes to the dehydrator. Drying costs are \$60 per fresh ton of prunes.

10. **INTEREST:**

Interest on operating capital is based on cash costs and is calculated monthly until harvest at the rate of 12% per year. Interest is charged on accumulated cash costs in the establishment years to reflect interest costs for a long-term establishment loan. Interest is also charged on investment at 12% per year to account for income foregone that could be received from an alternative investment (opportunity cost) and is based on the bare land value plus the average value of the trees, buildings and equipment.

11. **OVERHEAD:**

County taxes are calculated as 1% of the bare land value plus 1% of the average value of trees, equipment, buildings and improvements. Insurance is charged at 0.8% of the average value of the equipment. Office and business costs are estimated at \$6,000 per year for the whole ranch and include office supplies, phone, bookkeeping, accounting, legal fees, preparing roadways, general weed control, etc.

12. **LAND:**

Land is valued at \$5,000 per acre. The ranch is not enrolled in the Williamson Act.

13. **LABOR:**
Labor rates are \$8.00 per hour for skilled labor and \$6.00 per hour for field labor which includes 34% for SDI, FICA, insurance, and other benefits. The labor hours for operations involving machinery are 10% higher than the machine hours to account for the extra labor involved in equipment set-up, moving, maintenance and repairs.
14. **EQUIPMENT:**
In allocating the equipment cost per acre, the following calculations were made: (a) "Original Cost" of equipment is the estimated new cost and includes 6% sales tax. (b) "Cost Per Acre" is the new cost divided by the number of acres the equipment will be used on. (c) "Depreciation" is based on the "Per Acre Cost" divided by the expected life of the equipment. (d) "Interest" on investment is figured on one-half of the new cost per acre multiplied by 12%. (e) The investment cost per acre is calculated as 60% of the cost of all new equipment to reflect a mix of new and used equipment.
15. **FUEL & REPAIRS:**
The fuel and repair cost for each operation on the table entitled "Sample Costs to Produce French Prunes for Drying" is determined by multiplying the hourly operating cost for each piece of equipment (from the far right hand column of the table entitled "Equipment and Building List") by the number of hours per acre for that operation. The equipment used for an operation is identified on the table entitled "Sample Costs to Produce French Prunes for Drying" by the number listed in the "Tractor/Implement No." column which corresponds to the "Item Number" column on the "Equipment and Building List."
16. Pick-up truck operating costs are based on 10,000 miles/year of use at \$0.15/mile.

SAMPLE COSTS TO ESTABLISH FRENCH PRUNE ORCHARD
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Costs are for an orchard planted 20' X 20', with 108 trees/A. A pipeline irrigation system is used.

Skilled labor: \$8.00 per hour Interest rate: 12.0%
Field labor: \$6.00 per hour

YEAR	Costs per Acre					
	1st	2nd	3rd	4th	5th	6th
YIELD (Dry tons/acre)				.15	.75	1.50
Planting costs						
Land preparation: subsoil & level - contract	160					
Disk and Float: 4 hours - labor and tractor	72					
Trees: 108 @ \$3.75 (+2 2nd Yr. and 1 3rd Yr.)	405	8	4			
Survey, dig hole, plant & prune: 108 @ \$.50	54	4	2			
TOTAL PLANTING COSTS	\$691	\$12	\$6			
Cultural costs:						
Training, tying and pruning (skilled labor)	\$4	\$33	\$51	\$51	\$100	\$150
Brush disposal	5	9	20	20	20	20
Tillage and Irrigation Preparation:						
tractor + 6 hrs. yrs 1-3, 1.33 hr. yr. 4+	97	97	97	21	21	21
Put up borders	30	0	0	0	0	0
Mow middles 5X	0	40	40	40	40	40
Weed control sprays (material & application)	0	27	27	27	27	27
Irrig. labor: 3 hrs 1st 3 yrs, 2 hr yrs. 4+	18	18	18	12	12	12
Water @ \$20/ac. ft. + \$6/ac. district tax	36	36	56	76	106	106
Fertilizer: Nitrogen \$0.33/lb	4	4	8	8	8	25
.5 hr. labor and tractor	7	7	7	7	7	7
Pest control sprays (material & application)	29	29	29	29	29	52
Zinc spray (material & application)	0	0	0	18	18	18
Miscellaneous labor and power - 1 hour	16	16	16	16	16	16
Pick-up truck costs	30	30	30	30	30	30
TOTAL CULTURAL COSTS	\$276	\$346	\$399	\$355	\$435	\$525
Harvesting Costs: (3.33 fresh tons: 1 dry ton)						
Shake and catch (\$32/fresh ton)				16	80	160
Haul to dehydrator (\$8/fresh ton)				4	20	40
Dry (\$60/fresh ton)				30	150	300
TOTAL HARVEST COSTS				\$50	\$250	\$500
Overhead Costs:						
Office and business costs	120	120	120	120	120	120
County Taxes	55	55	55	55	93	105
Insurance	4	4	4	4	4	4
TOTAL OVERHEAD COSTS	\$179	\$179	\$179	\$179	\$217	\$229
TOTAL CASH COSTS	\$1,147	\$537	\$583	\$584	\$901	\$1,253
ACCUMULATED CASH COSTS	\$1,147	\$1,683	\$2,266	\$2,851	\$3,752	\$5,005

YEAR	Costs per Acre					
	1st	2nd	3rd	4th	5th	6th
Depreciation:						
Buildings, equipment and irrigation system	92	92	92	92	92	92
TOTAL DEPRECIATION	\$92	\$92	\$92	\$92	\$92	\$92
Interest on Investment at 11%						
Buildings, equipment and irrigation system	60	60	60	60	60	60
Land \$5000/acre	600	600	600	600	600	600
Interest on accumulated cash costs	138	202	272	342	450	601
TOTAL INTEREST ON INVESTMENT	\$798	\$862	\$932	\$1,002	\$1,110	\$1,261
TOTAL COST FOR THE YEAR	\$2,036	\$1,490	\$1,607	\$1,678	\$2,103	\$2,606
CREDIT FROM HARVEST @ \$0.40/POUND				\$120	\$600	\$1,200
NET COST FOR THE YEAR	\$2,036	\$1,490	\$1,607	\$1,558	\$1,503	\$1,406
TOTAL ACCUMULATED NET COST	\$2,036	\$3,527	\$5,134	\$6,692	\$8,196	\$9,601

FRENCH PRUNES FOR DRYING
MONTHLY SUMMARY OF PER ACRE CASH COSTS

Production Year: October - September
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Operation	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	TOTAL
Cultural costs:													
Pruning - contract				140.4									\$140
Brush Disposal				20.1									20
Fertilize (85# N)*							22.7			11.4			34
Dormant spray					29.0								29
Bloom spray						22.9							23
Zinc spray						18.2							18
Irrigation (8 X 8.5")							15.0	15.0	30.0	30.0	15.0	15.0	120
Labor							1.5	1.5	3.0	3.0	1.5	1.5	12
Spray: Weed Control			33.3							7.0			40
Mow 5X						10.1		10.1	10.1		10.1		40
Miscellaneous						5.2		5.2			5.2		16
Pick-up truck costs	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	30
Interest on operating capital @ 12%		.1	.4	2.0	2.4	3.0	3.4	3.8	4.4	4.9	18.6		43
TOTAL CULTURAL COSTS	\$3	\$3	\$36	\$165	\$34	\$62	\$45	\$38	\$57	\$52	\$53	\$19	\$566
Harvest Costs:													
Shake and pick											426.2		426
Haul to dehydrator											106.6		107
Dry											799.2		799
TOTAL HARVEST COSTS											\$1,332		\$1,332
Cash overhead:													
Office and business	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	120
County Taxes			51.5					51.5					103
Equipment Insurance				4.0									4
TOTAL CASH OVERHEAD	\$10	\$10	\$61	\$14	\$10	\$10	\$61	\$10	\$10	\$10	\$10	\$10	\$227
TOTAL CASH COSTS	\$13	\$13	\$98	\$179	\$44	\$72	\$107	\$48	\$67	\$62	\$1,395	\$29	\$2,125

* Split application: 2/3 applied in April, 1/3 applied in July.

EQUIPMENT AND BUILDING LIST FOR FRENCH PRUNES FOR DRYING
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Interest Rate: 12%

Fuel Cost per Gallon \$.80
\$.86

ITEM #	DESCRIPTION	NEW COST	ANNUAL USE (ACRES)	COST PER ACRE	LIFE (HRS)	YEARS TO TRADE	---OVERHEAD*---		--- HOURLY COSTS ---			
							DEPRECIATION	INTEREST*	TAR*	FUEL*	REPAIRS*	TOTAL
Tractors:												
1	55 HP wheel diesel	\$20,000	50	\$400	12,000	10	\$40.00	\$24.00	120%	\$2.95	\$2.00	\$4.95
2	Disc, 8'	5,000	50	100	2,500	10	10.00	6.00	120		2.40	2.40
3	Float	2,000	50	40	2,500	10	4.00	2.40	120		.96	.96
4	Mower	4,000	50	80	2,000	10	8.00	4.80	120		2.40	2.40
5	Brush shredder	7,600	50	152	2,500	10	15.20	9.12	100		3.04	3.04
6	Weed sprayer, SP	1,650	50	33	2,000	10	3.30	1.98	120	2.58	.99	3.57
7	Pipeline irrigation system	24,000	50	480	27,000	20	24.00	28.80	10		.09	.09
8	Pick-up, 1/2 ton	14,000	50	280	2,000	7	40.00	16.80	60			
	Miscellaneous shop tools	4,500	50	90		10	9.00	5.40				
	Buildings	12,000	50	240		30	8.00	14.40				
TOTAL COST		\$82,750		\$1,655			\$154	\$99				
60% OF NEW COSTS*		\$49,650		\$993			\$92	\$60				

* DEFINITIONS:

- YEARS TO TRADE----- The projected life of the machine in years adjusted for excessive annual use.
- OVERHEAD ----- Per acre per year.
- DEPRECIATION ----- "COST PER ACRE" divided by "YEARS TO TRADE"
- INTEREST----- ("COST PER ACRE" X "INTEREST RATE") divided by 2 = average interest cost per acre per year.
- TAR----- Total accumulated repairs. The total cost of repairs during the machine's life expressed as a percent of "NEW COST". Calculated from equations based on equipment type and annual use.
- HOURLY COST OF FUEL----- Diesel fuel, oil and lube costs per hour = HP x cost of diesel fuel/gal X 0.0667.
Gasoline fuel, oil and lube costs per hour = HP x cost of gasoline/gal X 0.0889.
- HOURLY COST OF REPAIRS-- ("NEW COST" X "TAR") divided by ("LIFE IN HOURS").
- 60% OF NEW COSTS ----- Used to reflect a mix of new and used equipment.

COST TO PRODUCE FRENCH PRUNES FOR DRYING AT VARYING PRICES AND YIELDS

FRESH YIELD	Yield (Tons per acre)								
	4	8	12	13.32	20	24	28	32	36
DRY YIELD	1.20	2.40	3.60	4.00	6.01	7.21	8.41	9.61	10.81
Cultural Costs	566	566	566	566	566	566	566	566	566
Harvest Costs	400	800	1,200	1,332	2,000	2,400	2,800	3,200	3,600
Cash Overhead	227	227	227	227	227	227	227	227	227
Cash cost/acre	1,193	1,593	1,993	2,125	2,793	3,193	3,593	3,993	4,393
Cash cost/dry ton	993	663	553	531	465	443	427	416	406
Investment cost	1,648	1,648	1,648	1,648	1,648	1,648	1,648	1,648	1,648
TOTAL COST/ACRE	2,841	3,241	3,641	3,773	4,441	4,841	5,241	5,641	6,041
TOTAL COST/DRY TON	2,365	1,349	1,010	943	739	672	623	587	559

PER ACRE INCOME ABOVE CASH COSTS AT VARYING PRICES AND YIELDS

FRESH YIELD	Yield (Tons per acre)								
	4	8	12	13.32	20	24	28	32	36
DRY YIELD	1.20	2.40	3.60	4.00	6.01	7.21	8.41	9.61	10.81
Cents/dry pound									
15	-832	-872	-912	-925	-991	-1,031	-1,070	-1,110	-1,150
20	-712	-632	-551	-525	-390	-310	-229	-149	-69
25	-592	-392	-191	-125	210	411	611	812	1,013
30	-472	-151	169	275	811	1,131	1,452	1,773	2,094
35	-352	89	530	675	1,411	1,852	2,293	2,734	3,175
40	-232	329	890	1,075	2,012	2,573	3,134	3,695	4,256
45	-112	569	1,250	1,475	2,613	3,294	3,975	4,656	5,337

PER ACRE INCOME ABOVE TOTAL COSTS AT VARYING PRICES AND YIELDS

FRESH YIELD	Yield (Tons per acre)								
	4	8	12	13.32	20	24	28	32	36
DRY YIELD	1.20	2.40	3.60	4.00	6.01	7.21	8.41	9.61	10.81
Cents/dry pound									
15	-2,480	-2,520	-2,560	-2,573	-2,639	-2,678	-2,718	-2,758	-2,797
20	-2,360	-2,280	-2,199	-2,173	-2,038	-1,958	-1,877	-1,797	-1,716
25	-2,240	-2,039	-1,839	-1,773	-1,438	-1,237	-1,036	-836	-635
30	-2,120	-1,799	-1,478	-1,373	-837	-516	-196	125	446
35	-2,000	-1,559	-1,118	-973	-236	204	645	1,086	1,527
40	-1,880	-1,319	-758	-573	364	925	1,486	2,047	2,608
45	-1,760	-1,078	-397	-173	965	1,646	2,327	3,008	3,689