

PRODUCING EUCALYPTUS FOR FIREWOOD IN TULARE COUNTY

Establishment and Production Costs

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Although Eucalyptus has been grown in California for many years the production of Eucalyptus for energy is a new industry which has recently received much attention.

Potentially Eucalyptus has many markets, including pulpwood for paper and chips to fire biomass generators. The economics of these uses are currently limited by transportation costs to facilities. At this time the most profitable market for Eucalyptus is firewood and this is what this study is based on.

Because of the newness of the industry, much of what is presented here are estimates of what would be the best management practices gathered from people involved in the industry. These may or may not be borne out by experience, but can be used as a starting point for comparing this venture with other possible land uses. You can adjust the costs where you think yours will differ from the ones we have used. We have tried to present estimates of costs, yields and returns as realistically as possible. This is not intended to imply that these costs and management priorities are optimum inputs. This information will have to come from local observations and assessments of the yield response from different cultural inputs.

Returns are based on what can be earned today. We have no way of knowing what prices will be in five or six years when the trees are harvested. It is likely that energy prices will increase.

The study is based on small acreage (5 acres) because most of the requests we have received for information have come from people interested in small acreages. For this reason most operations which would require expensive equipment were figured at custom rates.

One of the largest costs in this study is the opportunity cost of the land. This represents an estimate of what could be earned with money invested in the land if it was invested in another enterprise. The cost we have used for land is fairly low (\$5,000 per acre). Land may be as low as \$3,000 or as high as \$8,000 for good land in small parcels. Eucalyptus are quite adaptable and may do well where other crops would not. Examples might include areas with high water tables or alkaline soils.

ASSUMPTIONS:

1. Land - \$5,000 per acre. A 20 year mortgage at 10% interest.
2. Labor - \$6.50 per hour
3. Spacing - 6x6 foot square spacing resulting in 1210 trees per acre
4. Nitrogen application
 - 1st year - 50 lb/acre
 - 2nd year - 75 lb/acre
 - 3rd year - 100 lb/acre
 - 4th year - 150 lb/acre
5. Irrigation - flood irrigation system at a cost of \$200 per acre. 20 year life. 6 hours of labor per year water costs are \$15 per acre foot
 - 1st year - 2 acre ft
 - 2nd year - life of stand - 3 acre ft
6. Interest - Interest is charged on the establishment years on the accumulated cultural costs at 10% per year. This figure is an estimate of the opportunity cost of keeping cash tied up in the stand. Interest on land is calculated as the average annual interest on a 20 year mortgage at 10% interest rate.
7. Depreciation - calculated on a straight line basis.

COMMENTS:

1. On the production cost study, the costs are per rotation. That is, for a five year production period. so the depreciation and interest figures are for five years.
2. The first six years are considered establishment years. In the sixth year there is a cutting and this is treated as a credit to the establishment costs. The total establishment cost is then divided equally among the next three rotations and appears in the cost study as depreciation on trees.
3. The biggest factor in the costs is the interest on land. Without any charge to land the total cost of production is \$4,666 per acre or \$130 per cord at a 36 cord yield.

SAMPLE COSTS TO ESTABLISH EUCALYPTUS
Tulare County 1983

Prepared by Karen Klonsky, Area Farm Management Specialist,
University of California, Davis.

labor rate	\$	6.50 per hour
water	\$	15.00 per acre foot
land	\$	5000.00 per acre

OPERATION	1ST YEAR	2ND YEAR	3RD YEAR	4TH YEAR	5TH YEAR	6TH YEAR
Ripping (custom)	100.00					
Disc & smooth	50.00					
Pre-emergence herbicide application	7.00	7.00				
materials	20.00	20.00				
Spot herbicide application	0.65	0.65				
material	20.00	20.00				
Layout	20.80					
Planting labor	78.00					
trees-\$.40 ea.	484.00					
Fertilize application	3.25	3.25	3.25	3.25	3.25	3.25
nitrogen	18.00	26.00	35.00	52.00	52.00	52.00
Irrigation labor	39.00	39.00	39.00	39.00	39.00	39.00
water	30.00	45.00	45.00	45.00	45.00	45.00
Misc. labor	13.65	13.65	13.65	13.65	13.65	13.65
TOTAL CULTURAL COST	884.35	174.55	135.90	152.90	152.90	152.90
ACCUMULATED COSTS	884.35	1058.90	1194.80	1347.70	1500.60	1653.50
HARVEST COSTS - 36 cords @ \$35 per cord						1260.00
Cash overhead:						
office, misc.	53.06	10.47	8.15	9.17	9.17	9.17
taxes	50.00	50.00	50.00	50.00	50.00	50.00
TOTAL OVERHEAD	103.06	60.47	58.15	59.17	59.17	59.17
DEPRECIATION	23.00	23.00	23.00	23.00	23.00	23.00
Interest @ 10%:						
equipment	17.00	17.00	17.00	17.00	17.00	17.00
land	337.50	337.50	337.50	337.50	337.50	337.50
accum. costs	88.44	105.89	119.48	134.77	150.06	165.35
TOTAL INTEREST	442.94	460.39	473.98	489.27	504.56	519.85
TOTAL ANNUAL COSTS	1453.35	718.41	691.03	724.34	739.63	2014.92
- INCOME FOR WOOD @ \$80/ CORD						-2880.00
ACCUMULATED NET COSTS	1453.35	2171.76	2862.79	3587.14	4326.77	3461.70

SAMPLE COSTS TO PRODUCE EUCALYPTUS
Costs for a Five Year Rotation
Tulare County 1983

Prepared by Karen Klonsky, Area Farm Management Specialist,
University of California, Davis.

labor rate	\$	6.50 per hour
water	\$	15.00 per acre foot
land	\$	5000.00 per acre

OPERATION	ANNUAL CASH COSTS PER ACRE description	cost	TOTAL PER ROTATION	YOUR COST
Irrigation				
labor	6 hours	39.00	195.00	
water	3 acre feet	45.00	225.00	
Fertilizer				
labor	.5 hours	3.25	16.25	
nitrogen	150 lbs. @ \$.35	52.50	262.50	
Misc labor	2.1 hours	13.65	68.25	
Interest @ 10% for 5 years			169.52	
TOTAL CULTURAL COSTS			936.52	
HARVEST COSTS - cut & haul to landing, not delivered			1260.00	
Cash Overhead:				
office, misc.	\$15 per year for 5 years		75.00	
taxes	\$50 per year for 5 years		250.00	
TOTAL CASH OVERHEAD			325.00	
TOTAL CASH COST			2521.52	
CASH COST PER CORD AT 36 CORD PER ACRE YIELD			70.04	
Investment cost:				
	per acre	cost per 5 year rotation		
		depreciation	interest @ 10%	
land	5000.00		1687.50	
trees	3461.70	1153.90	865.43	
equipment	130.00	115.00	85.00	
TOTAL	8591.70	1268.90	2637.93	3906.83
TOTAL COST PER ROTATION PER ACRE			6428.35	
TOTAL COST PER CORD @ 36 cord yield			178.57	

