
UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

2005

SAMPLE COSTS TO PRODUCE
CHRISTMAS TREES

CHOOSE and CUT TREE FARM



Douglas Fir and White Fir Trees
SIERRA NEVADA FOOTHILLS
EL DORADO, PLACER and NEVADA COUNTIES

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Sierra Nevada Foothills – El Dorado, Placer and Nevada Counties

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University of California and the United States Department of Agriculture, Risk Management Agency, Cooperating

INTRODUCTION

Sample costs to establish a Christmas tree plantation and produce Christmas trees in the Sierra Nevada Foothills – El Dorado, Nevada and Placer Counties are presented in this study. This study is intended as a guide only, and can be used to make production decisions, determine potential returns, prepare budgets and evaluate production loans. The production practices described in this study are those considered typical for growing Christmas trees in the region, but they will not apply to every situation. Sample costs for labor, materials, equipment, and custom services are based on current figures. A blank column, “Your Costs”, in Tables 1 and 5 is provided to enter your farm costs.

The hypothetical farm operation, production practices, overhead, and calculations are described under the assumptions. For additional information or an explanation of the calculations used in the study, call the Department of Agricultural and Resource Economics, University of California, Davis, (530) 752-3589 or your local UC Cooperative Extension office.

Sample Cost of Production Studies for many commodities can be downloaded at <http://coststudies.ucdavis.edu>, requested through the Department of Agricultural and Resource Economics, UC Davis, (530) 752-4424 or obtained from the local county UC Cooperative Extension offices. Some archived studies are also available on the website.

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ASSUMPTIONS

The assumptions refer to Tables 1 to 11 and pertain to sample costs to produce Christmas trees in the Sierra Nevada Foothills – El Dorado, Placer and Nevada Counties. The cultural practices described and materials used are considered typical for a well-managed plantation in the regions. The costs, materials, and practices will not apply to all situations. Establishment and production practices vary by grower and the differences can be significant. The study does not represent a single plantation and is to be used as a guide only. **The use of trade names and cultural practices in this report does not constitute an endorsement or recommendation by the University of California nor is any criticism implied by omission of other similar products or cultural practices.**

Land. The hypothetical farm, located on land with a 15% slope, is owned and operated by the grower. The contiguous 20-acre farm consist of a choose and cut tree plantation of which 16 acres are planted to Christmas trees. One-half of the 16 acres is planted to Douglas fir and one-half to white fir. Field roads, parking areas, and sales areas occupy two acres. The remaining two acres are homestead and unplantable acres. The farm elevation is assumed to be between 1,500 and 4,000-foot elevation.

Production Operating Costs

for

Douglas Fir, Tables 1 – 4

White Fir, Tables 5 – 8

Whole Farm Tables 9 – 11

General Operations. Typically, a grower establishing a Christmas tree plantation (farm) will plant a portion of the acreage over a period of years until the farm is in full production. In this study, the Even-Age System is used. In this system the cultural practices and trees are the same species for the entire block and the cull trees are eliminated at final harvest. The trees in the block are the same age and once the block is cut, it is replanted. The Uneven-Age System provides continuous trees. The grower may plant several blocks or the entire farm. As the trees are harvested they are replanted with seedlings or stump culture is used to start a new tree, resulting in different age and size trees in the block. Stump culture is the practice of leaving a few lower branches on the stump to serve as “nurse branches” until a shoot sprouts to produce a new tree. In this study, it is assumed the grower will plant one acre of Douglas fir and one acre of white fir each year, but for the overall farm calculations it is assumed that the entire 16 acres are planted. Growers use many other layouts and methods of establishing new trees and will incur similar costs.

Site Preparation. Costs for clearing the land are highly variable and therefore are not included in the establishment cost. The costs will depend on if the land was farmed previously, the amount of brush, tree stumps and rocks that need to be cleared. In August or September in the year prior to planting, the planting block is marked (5-hours/acre), soil samples for nutrient analysis are taken and then the land is ripped in two directions. A custom operator does the ripping when the soil is dry to get a good shatter or breaking up of the soil. Ripping should be done in the tree rows to make planting (digging) easier and faster. In January, prior to planting, the grower disks, harrows, or rototills the land.

Trees. Several species of trees are available for planting, but Douglas fir (*Pseudotsuga menziesii*) and White fir (*Abies concolora*, a “true” fir) are planted on this plantation. The Douglas fir represents species that can be grown on the lower elevations and white fir represents the true firs that can be grown at the higher elevations. Also, the Douglas Firs are ready for sale in 6 – 8 years and the White Fir in 8 – 10 years. The true firs (*Abies sp.*) also include the Red Fir (Silver Tip) and others (Noble, Nordmann, etc.). Tree species are not genetically pure meaning there is variation among the seedlings. Some trees will grow faster than others within the same planting lot. In addition, variations in soil, moisture and nutrients will affect individual tree growth.

Plant. In February, the tree sites are marked and the trees planted, but tree rows and roads may be laid out prior to ripping. Young tree plugs (P-1) are purchased at \$0.50 each from a reputable nursery. Two people plant the tree plugs (P-1), one person using a power drill/auger digs the hole and the other person plants the tree (put in hole and fill with dirt). Planting time per tree will depend on planting method and firmness of the soil, and may be as high as 80 man-hours per acre. In this study it takes 20 hours (40 man-hours) to plant one acre. The trees for this study are planted on a 5 x 5-foot square spacing, 1,742 trees per acre. More trees per acre may be obtained by planting on a triangular pattern. The farm is divided into one-acre blocks approximately 165 feet X 264 feet with 15-foot roads around each block. Block configuration varies with the slope and shape of the farm. In the second year, due to mortality, 20% (348) of the trees planted the previous year are replanted. After planting, in a separate pass reusable shade cloth (shingles) that protect the seedling from the direct sun are placed on the south side of each tree. It takes approximate 20 seconds per tree or 9.68 man-hours per acre to set the shingles in place. The shades are removed in October and it takes two men 2.5 hours per acre to pull and place the shades in storage.

Irrigation. Water costs include district water at \$2.76 per acre-inch. The grower may also pay a basic per farm water charge assessed by the district (shown under Cash Overhead). Water and basic monthly charges vary by district and whether gravity feed or pumped. Labor is calculated at 0.15 hours per acre per irrigation. The field is drip irrigated weekly from June to September. Some farms do not irrigate, especially those in the upper elevations in this region. Also overhead sprinklers are common in the area and application times and labor costs may be different than drip irrigation. Actual crop water use for the area was not available, but from limited data from other regions and grower estimates, water in this study was applied according to the calculations shown in Table A.

Year	Douglas Fir	White Fir
acre-inches		
1 – 2	1	1
3 – 4	4	2
5	10	4
6 - 7	18	10
8+	18	18

Fertilization. Soil samples at 0.33 samples per acre or five samples per 16 acres are taken prior to ripping. Fertilizer should be applied according to the analysis recommendations. In this study, no fertilizer is applied during the first three years to the Douglas fir and the first four years to the white fir. Beginning in late May or early June of the fourth year, nitrogen fertilizer as Urea (46-0-0) at 200 pounds per acre (92 pounds of nitrogen) per season is applied to the Douglas fir trees and beginning in the fifth year to the white fir trees. The fertilizer is applied by hand and the grower’s tractor and trailer are used to haul the fertilizer to the field. The estimated application time is 40 minutes per acre, which includes loading the bags on the trailer and driving to and from the field (10 minutes/acre) plus an application time of 30 minutes per acre.

Pest Management. The growers use the pesticides and rates mentioned in this cost study. For more information on other pesticides available, pest identification, monitoring, and management, contact your UC Cooperative Extension farm advisor. Pesticide costs may vary by location and grower volume. Pesticide costs in this study are taken from a single dealer and shown as full retail.

Weeds. In the first year and second year, after planting and prior to budbreak, Atrazine herbicide is applied over the tops of the trees to the row middles and tree rows using a small tractor and sprayer with 10-foot boom. Two applications of Roundup to control various weeds that germinated since the last spraying are applied as needed – May and August in this study during the first three years. In the fourth year and subsequent years, Roundup is applied with a backpack sprayer one time in May. Each application is assumed to take one-hour per acre. Hand weeding (3 hours/acre) around the base of the trees is done in July during the first three years. In the fourth year, mulch provided free by tree pruning companies, is spread by hand (12 hours/acre) for weed control, erosion control, walking, and soil moisture retention.

Insects. Aphids, mites, and ants can be a problem in Christmas trees. Typically not all trees are affected and the grower would tend to spray individual trees as needed. For this study, a uniform spray for aphid control (Asana) is applied to the plantation in April using the grower’s tractor and boom sprayer in the first two years with one-half rate applied during the first year. Beginning in the third year, the grower parks the pressure sprayer in the roadway, with a long hose attached to the sprayer and with a hose end wand, sprays the individual trees and the application takes one-hour per acre. The application costs include fuel costs for running the pressure sprayer, labor and materials. In the Douglas fir, aphids are controlled with a single application in the spring (April) during the first five years, and in both the spring and late summer/fall (September/October) during the sixth, seventh, and eighth years. White fir is treated in the spring during the first seven years and in the spring and fall during the eighth, ninth, and tenth years. Mites are controlled with Floramite miticide beginning in July of the second year, again using the pressure sprayer and wand. Lower rates of materials may be applied in the early years because of the small trees. Common alternative methods are that the grower will apply the materials with a backpack sprayer or apply with a backpack sprayer and use the pressure sprayer in the field for volume mixing and filling the backpack sprayer. Insecticide applications with the backpack or wand are assumed to take one-hour per application.

Disease. Douglas fir is susceptible to Swiss Needle Cast (*Phaeocryptopus gaeumannii*) and Rhabdocline Needle Cast fungi (*R. pseudosugae* & *R. weirii*). Bravo Weather Stik fungicide is applied in May beginning in the fourth year using the grower’s tractor with the pressure sprayer and wand. Each application takes one-hour to apply. White fir is not susceptible to these needle pathogens, and therefore is not treated.

Vertebrates. Gophers can be a problem and are monitored beginning in the first year. During the first three years, gophers are controlled twice a year (May, September) with gopher bait. In the fourth and subsequent years, gophers are monitored and treated as needed. In this study, gophers are baited one time (May) during the fourth and subsequent years. Each bait application is assumed to take one-hour to walk the field and place the bait.

Prune (Double Leaders/Leader Control). Leader (growing tip) control is done on both the Douglas and white fir. Pruning to remove double leaders begins in the second year. In the fifth and subsequent years, pruning is done to control the leader length (keeping leaders in check). Hand clippers are used for pruning the leaders and the pruning is done anytime during the season.

Table B. Pruning Times in Hours Per Acre

Douglas Fir											
Year	1	2	3	4	5	6	7	8	9	10	Total
Double Leaders		6.00	6.00	6.00							18.00
Leader Length					4.75	4.50	4.50	0.68			14.43
Shear: Taper					58.00	52.00	52.00	8.00			170.00
Basal				87.00							87.00
White Fir											
Year	1	2	3	4	5	6	7	8	9	10	Total
Double Leader		6.00	6.00	6.00							18.00
Leader Length					4.75	4.50	4.50	4.50	4.50	0.68	23.43
Shape					5.00	5.00	5.00	5.00	5.00	0.75	25.75
Basal				87.00							87.00

Typically, the pruning is done each time the grower walks the field and not all trees will require pruning or all be done at the same time, but in this study a time (June) has been selected. Some lengthy side branches may also be clipped at the same time. Pruning times will vary considerably by grower, location, tree species and other factors. The pruning times in this study (Table B) are estimated from grower input and various cost studies.

Shear. Shearing is the shaping of side branches to the desired taper and to make the tree fuller. Shearing is done on Douglas fir beginning in the fourth or fifth year or when the trees are 3.5 to 5.0 feet high and is done each year until the tree is harvested. Shearing times in Douglas fir will vary depending on method (mechanical or hand). Times can range from seven seconds per tree with a mechanical hand shear to 30 seconds or longer per tree with a machete. Most growers in the area do not shear white fir. In this study, five hours per acre is allocated to minor pruning or shaping (clipping a few branch tips) of the white fir trees, beginning in July of the fifth year.

Basal Prune. Branches are removed on what is or will be the basal portion (handle) of the tree; the section on the tree trunk that supports the tree in the tree stand. The branches are removed in October of the fourth year, although it can be done any month except June and July, and may be done in other years, but is only done one time during the tree life. According to grower information, it takes an average of four minutes per tree.

Harvest. In this study, it is assumed that 80% of the planted trees are sold. At the Choose-N-Cut Christmas tree farms, the customer selects and cuts the tree with a saw provided by the grower. Labor is provided by the grower to collect tree payment, to assist the customer as necessary, to net the tree, and to load the tree on the customer's vehicle. On some tree farms, the customer selects the tree and the grower's labor cuts the trees. The grower usually hires local labor during the weekends beginning with the Thanksgiving weekend. Twelve to 15 individuals are hired to cover the various shifts. The number of individuals per shift will vary by day and time. A minimum staff, such as the grower and one assistant, is on duty during the week. For this study, a full staff is allocated to the harvest during the seventh year for Douglas fir and ninth year for White fir, when 65% of the trees are sold and this time is the basis for labor costs for the sixth (5%) and eighth year (10%) for Douglas fir and the eighth (5%) and tenth (10%) for white fir. Most trees are netted prior to loading on the customer vehicle and a charge per tree is included in the harvest materials and labor operation cost.

Yields. Because of the genetic and environmental variability and in addition to customer preference, a few Douglas fir trees are sold in the sixth year (5%). Most of the trees are sold in the seventh year (65%) and the remaining saleable trees are sold in the eighth year (10%). It is assumed that 20% of the trees will have died or not meet customer expectations and will not be sold. These trees are destroyed prior to the next planting. White fir trees are sold in same ratio as the Douglas fir beginning in the eighth year.

Returns. In this study, it is assumed that the farm is located in a high traffic area and that 80% of the planted trees are sold. The trees are sold for \$34 each regardless of size. Growers normally sell the trees by the tree or by the foot. The price is the weighted average tree price (rounded down) for all species in the El Dorado and Placer region for the 2004 season based on Christmas Tree Association data. Sales tax is not collected in this study.

Miscellaneous Site Preparation. Site preparation for tree sales includes tractor time for smoothing the roads and parking areas as well as miscellaneous labor for putting up signs, marking the parking lots, sanitation facilities, other necessary preparations and miscellaneous supplies for the sale of the trees. Times and costs are estimated and not taken from any specific data.

Taxes. Besides income taxes, the Christmas tree business requires the reporting and payment of taxes, most of which are not included in this study.

Sales Tax. In this study, the returns collected are net of sales tax. The grower collects sales taxes at the local county rate at the time of sale of each Christmas tree. The amounts are reported and paid to the state by the grower. For further information see the Board of Equalization website at <http://www.boe.ca.gov>.

Timber Tax. The trees sold are subject to the timber tax as assessed by the California State Board of Equalization. The tax is based on lineal yield and is separate from the sales tax. The tax is not included in this study. For further information see the Board of Equalization website.

Income Tax. The income received from a Choose & Cut Christmas Tree Farm is subject to income taxes. Timber as defined under the Internal Revenue Code includes evergreen trees that are more than six years old at the time they are cut (separated from their roots) and sold for ornamentals. Net gains from sales of Christmas trees can qualify as capital gains income rather than ordinary income, possibly resulting in lower taxes. Certain bookkeeping requirements are required to qualify for the capital gains treatment. See your accountant or tax preparer. Online information may found at <http://www.timbertax.org>.

Labor. A minimum amount of skilled machine labor is required on the tree farm. The laborer operates a small garden type tractor; therefore one wage is used for both machine operation and general labor. Labor rates are \$10.96 for general and machine labor and includes payroll overhead of 37%. The basic hourly wages are \$8.00. The overhead includes the employers' share of federal and California state payroll taxes, workers' compensation insurance for nurseries (code 0005), and a percentage for other possible benefits. Workers' compensation insurance costs will vary among growers, but for this study the cost is based upon the average industry final rate as of January 1, 2005 (California Department of Insurance). Labor for operations involving machinery are 20% higher than the operation time given to account for the extra labor involved in equipment set up, moving, maintenance, work breaks, and field repair.

Wages for management are not included as a cash cost. Any return above total costs is considered a return to management. However, growers wanting to account for management may wish to add a fee. The manager makes all production decisions including cultural practices, action to be taken on pest management recommendations, and labor.

Equipment Operating Costs. Repair costs are based on purchase price, annual hours of use, total hours of life, and repair coefficients formulated by American Society of Agricultural Engineers (ASAE). Fuel and lubrication costs are also determined by ASAE equations based on maximum Power Take Off (PTO) horsepower, and fuel type. Prices for on-farm delivery of diesel and gasoline are \$1.51 and \$2.05 per gallon, respectively. The price is projected based on random sampling of dealers in January 2005 and 2004 trends from various reporting agencies. The cost includes a 2% local sales tax on diesel fuel and 8% sales tax on gasoline. Gasoline also includes federal and state excise tax, which are refundable for on-farm use when filing your income tax. Tractor time is 10% higher than implement time for a given operation to account for setup, travel and down time.

Interest On Operating Capital. Interest on operating capital is based on cash operating costs and is calculated monthly until harvest at a nominal rate of 7.65% per year. A nominal interest rate is the typical market cost of borrowed funds. The interest cost of post harvest operations is discounted back to the last harvest month using a negative interest charge.

Environmental Costs. Growers are subject to various local, state, and federal environmental regulations. These costs vary considerably by location and are difficult to quantify; therefore, they are not included as a cost in this study. Some sample environmental costs are the application process for a pesticide identification number and related continuing education classes that may be required, time for applying and implementing the permit requirements. Also, irrigation costs may include an Ag discharge waiver fee. The cost of membership in a watershed coalition varies by county, but may total \$100 or more per year per farm.

Risk. Production risks should not be minimized. While this study makes every effort to model a production system based on typical, real world practices, it cannot fully represent financial, agronomic and market risks, which affect the profitability and economic viability.

Cash Overhead Costs

Cash overhead consists of various cash expenses paid out during the year that are assigned to the whole farm and not to a particular operation. These costs include property taxes, interest on operating capital, office expense, liability and property insurance, sanitation services, equipment repairs, and management.

Property Taxes. Counties charge a base property tax rate of 1% on the assessed value of the property. In some counties special assessment districts exist and charge additional taxes on property including equipment, buildings, and improvements. For this study, county taxes are calculated as 1% of the average value of the property. Average value equals new cost plus salvage value divided by 2 on a per acre basis.

Insurance. Insurance for farm investments varies depending on the assets included and the amount of coverage. *Property insurance* provides coverage for property loss and is charged at 0.69% of the average value of the assets over their useful life. *Liability insurance* covers accidents on the farm and costs \$429 for the 20 acre farm. *Customer insurance* for choose and cut tree farms, is additional liability insurance to cover customer accidents that may occur while on the farm to purchase a tree. Costs will vary depending upon the coverage and for a 10 to 15 acre farm, the range may be from \$500 to \$2,000 for the farm. Rates will typically be higher where the customer cuts the tree versus the owner or his labor cutting the tree. A cost of \$1,000 per farm or \$62.50 per producing acre is used in this study.

Office Expense. Office and business expenses are estimated at \$120 per producing acre (16 acres). These expenses include office supplies, telephones, bookkeeping/accounting, tax preparation, legal fees, shop and office utilities, and miscellaneous administrative charges. In some counties a business license may be required for on-farm sales. The cost is a general estimate and not based on any actual data.

Marketing/Advertising. An assumed cost of \$480 per year per farm is included for organization memberships, brochures, newspaper ads and other forms of marketing to sell the trees. Marketing costs begin in the first year that trees will be sold and continue each year thereafter.

Basic Water Charge. Many water districts charge a basic monthly charge or other overhead or administrative fees. The annual farm fee in this study, based on El Dorado Irrigation District for gravity feed water is \$261 per farm or \$16.27 per producing acre (16 acres).

Sanitation Services. Sanitation services provide four portable toilets, washbasins, soap, and towels for one month during harvest. The cost is based on grower input.

Management/Supervisor Salaries. The grower farms the orchard; therefore no salaries are included for management. Returns above costs are considered a return to management.

Investment Repairs. Annual maintenance is calculated as two percent of the purchase price.

Non-Cash Overhead

Non-cash overhead is calculated as the capital recovery cost for equipment and other farm investments.

Capital Recovery Costs. Capital recovery cost is the annual depreciation and interest costs for a capital investment. It is the amount of money required each year to recover the difference between the purchase price and salvage value (unrecovered capital). It is equivalent to the annual payment on a loan for the investment with the down payment equal to the discounted salvage value. This is a more complex method of calculating ownership costs than straight-line depreciation and opportunity costs, but more accurately represents the annual costs of ownership because it takes the time value of money into account (Boehlje and Eidman). The formula for the calculation of the annual capital recovery costs is $((\text{Purchase Price} - \text{Salvage Value}) \times \text{Capital Recovery Factor}) + (\text{Salvage Value} \times \text{Interest Rate})$.

Salvage Value. Salvage value is an estimate of the remaining value of an investment at the end of its useful life. For farm machinery (tractors and implements) the remaining value is a percentage of the new cost of the investment (Boehlje and Eidman). The percent remaining value is calculated from equations developed by the American Society of Agricultural Engineers (ASAE) based on equipment type and years of life. The life in years is estimated by dividing the wear out life, as given by ASAE by the annual hours of use in this operation. For other investments including irrigation systems, buildings, and miscellaneous equipment, the value at the end of its useful life is zero. The salvage value for land is the purchase price because land does not depreciate. The purchase price and salvage value for equipment and investments are shown in the tables.

Capital Recovery Factor. Capital recovery factor is the amortization factor or annual payment whose present value at compound interest is 1. The amortization factor is a table value that corresponds to the interest rate used and the life of the machine.

Interest Rate. The interest rate of 7.65% used to calculate capital recovery cost is the USDA-ERSs ten-year average of California's agricultural sector long-run rate of return to production assets from current income. It is used to reflect the long-term realized rate of return to these specialized resources that are used effectively in the agricultural sector.

Irrigation System. A drip irrigation system is installed and the estimated price includes the drip lines, laterals, booster pump, and filters.

Land. Small land parcels (20 acres or less) in the region are being purchased for home sites. Afterwards, the landowner may plant an agricultural crop on a portion of the land. In this study, the two acre home site and unplanted acres are not included in the land costs. An agricultural value estimated at \$12,000 per acre from farm real estate sales in the area is established for the 18 acres.

Building. The buildings total 480 square feet and are used for shop, storage, and tree sales.

Tools. This includes shop tools, hand tools, and miscellaneous field tools such as planting and pruning tools, backpack sprayers, and saws for cutting the trees.

Balers and Tables. The grower owns three balers (netting machines) and tables for wrapping the sold trees. The equipment is purchased the first year trees are sold and is the cost is allocated to the Douglas fir the first two years and to the entire farm once the white fir trees come into production.

Equipment. Farm equipment is purchased new or used, but the study shows the current purchase price for new equipment. The new purchase price is adjusted to 60% to indicate a mix of new and used equipment. Annual ownership costs for equipment and other investments are shown in the Whole Farm Annual Equipment, Investment, and Business Overhead Costs table. Equipment costs are composed of three parts: non-cash overhead, cash overhead, and operating costs. Both of the overhead factors have been discussed in previous sections. The operating costs consist of repairs, fuel, and lubrication and are discussed under operating costs.

Table Values. Due to rounding, the totals may be slightly different from the sum of the components.

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Table 1. SAMPLE COSTS PER ACRE TO PRODUCE CHRISTMAS TREES - DOUGLAS FIR

SIERRA NEVADA FOOTHILLS – EL DORADO, PLACER, NEVADA COUNTIES 2005

Year	Cost Per Acre									Your Costs	*Cost/ Tree
	1st	2nd	3rd	4th	5th	6th	7th	8th	TOTAL		
Yield: Trees Per Acre						87	1,132	174	1,394		
Planting Costs:											
Land Prep: Soil Test (5)	13								13		0.01
Land Prep: Mark Planting Block	55								55		0.03
Land Prep: Rip 2X (Custom)	350								350		0.20
Land Prep: Disk	7								7		0.00
Plant: Labor	438	66							504		0.29
Plant: Trees (1,742/acre, replant 20% second year)	871	174							1,045		0.60
Plant: Install & Remove Shades	208								208		0.12
TOTAL PLANTING COSTS	1,942	240							2,181		1.25
Cultural Costs:											
Weed: Over Top (Atrazine)	17	17							34		0.02
Fertilize: Urea				48	48	48	48	11	203		0.12
Insect: Aphid (Asana)	7	12	25	25	25	50	50	14	207		0.12
Weed: Spot Spray (Roundup) (Yrs 1-3, 2X) Yrs 4+, 1X)	22	22	22	11	11	11	11	11	121		0.07
Vertebrate: Gopher (Bait) (Yrs 1-3, 2X. Yrs 4+, 1X)	26	26	26	13	13	13	13	13	141		0.08
Disease: Needle Cast (Bravo)				32	32	32	32	8	137		0.08
Weed: Apply Mulch				132					132		0.08
Prune: Double Headers		66	66	66					197		0.11
Prune: Keep leader in check					52	49	49	7	158		0.09
Shear:					636	570	570	88	1,863		1.07
Prune: Basal				954					954		0.55
Irrigate: Drip	29	29	37	37	54	76	76	34	372		0.21
Weed: Hand	44	44	44						132		0.08
Insect: Mites (Floramite)		15	28	28	28	28	28	7	161		0.09
TOTAL CULTURAL COSTS	145	230	247	1,345	899	877	877	192	4,811		2.76
Harvest Costs:											
Harvest: Site Preparation						39	39	39	117		0.07
Harvest: (materials & labor)						590	9,103	1,576	11,269		6.47
Harvest: Non-Saleable Trees								54	54		0.03
TOTAL HARVEST COSTS						629	9,142	1,668	11,322		6.50
Interest On Operating Capital @ 7.65%	156	27	10	37	36	39	93	19	418		0.24
TOTAL OPERATING COSTS/ACRE	2,243	497	258	1,382	935	1,545	10,112	1,879	18,733		10.75

UC COOPERATIVE EXTENSION

Table 1 continued

Year	Cost Per Acre								TOTAL	Your Costs	Cost/ Tree
	1st	2nd	3rd	4th	5th	6th	7th	8th			
Yield: Trees Per Acre						87	1,132	175	1,394		
Cash Overhead Costs:											
Office Expense	120	120	120	120	120	120	120	120	960		0.55
Advertising Expense						30	30	30	90		0.05
Liability Insurance - Farm	27	27	27	27	27	27	27	27	214		0.12
Liability Insurance - Customer						63	63	63	188		0.11
Sanitation Fee						27	27	27	80		0.05
Water-Base Charge	16	16	16	16	16	16	16	16	130		0.07
Property Taxes	150	150	150	151	151	152	152	151	1,208		0.69
Property Insurance	10	10	10	11	11	12	12	11	88		0.05
Investment Repairs	43	43	43	43	43	45	45	44	350		0.20
TOTAL CASH OVERHEAD COSTS	366	366	366	369	369	492	492	488	3,308		1.90
TOTAL CASH COSTS/ACRE	2,609	863	624	1,751	1,303	2,037	10,604	2,367	19,859		11.40
INCOME/ACRE FROM PRODUCTION						2,958	38,488	5,950	47,396		27.21
NET CASH COSTS/ACRE FOR THE YEAR	2,609	863	624	1,751	1,303						
ACCUMULATED NET CASH COSTS/ACRE	2,609	3,472	4,096	5,847	7,150	6,228					
Non-Cash Overhead Costs: (Capital Recovery)											
Land	811	811	811	811	811	811	811	811	6,491		3.73
Building	55	55	55	55	55	55	55	55	436		0.25
Tree Shades	18	18	18	18	18	18	18	18	145		0.08
Drip Irrigation System	163	163	163	163	163	163	163	163	1,305		0.75
Field Equipment/Tools	22	22	22	22	22	22	22	22	179		0.10
Balers & Tables						15	15	8	38		0.02
Equipment	64	61	61	83	83	90	89	75	607		0.35
TOTAL NON-CASH OVERHEAD COST/ACRE	1,133	1,131	1,131	1,153	1,153	1,175	1,174	1,152	9,201		5.28
TOTAL COST/ACRE FOR THE YEAR	3,742	1,994	1,754	2,903	2,456	3,212	11,778	3,520	29,061		16.68
INCOME/ACRE FROM PRODUCTION						2,958	38,488	5,950	47,396		27.21
TOTAL NET COST/ACRE FOR THE YEAR		1,994	1,754	2,903	2,456	254					
NET PROFIT/ACRE ABOVE TOTAL COST							26,710	2,430	18,335		10.53
TOTAL ACCUMULATED NET COST/ACRE		1,994	3,748	6,651	9,107	9,361					

*Tree cost based on 1,742 planted trees per acre. Yr 8 costs reduced most trees have been sold.

UC COOPERATIVE EXTENSION

Table 2. MATERIALS AND CUSTOM COSTS PER ACRE - DOUGLAS FIR

SIERRA NEVADA FOOTHILLS - El Dorado, Placer, and Nevada Counties

	Unit	\$/Unit	Year 1		Year 2		Year 3		Year 4		Year 5		Year 6		Year 7		Year 8			
			Total Per Acre																	
			units	\$	units	\$	units	\$	units	\$	units	\$	units	\$	units	\$	units	\$	units	\$
OPERATING COSTS																				
Miscellaneous:																				
Soil Analysis	each	30.00	0.33	10																
Tree Netting	each	2.00										87.00	174	1132.00	2264	174.00	348			
Misc. Harvest Supplies	acre	20.00										1.00	20	1.00	20	1.00	20			
Custom:																				
Rip	acre	175.00	2.00	350																
Trees:																				
Tree Plugs P-1	each	0.50	1742.00	871	348.00	174														
Fertilizer:																				
46-0-0 (Urea)	lb	0.20							200.00	40	200.00	40	200.00	40	200.00	40	30.00	6		
Herbicides:																				
Atrazine 4L	pint	2.30	6.00	14	6.00	14														
Roundup Pro	pint	6.24	2.50	16	2.50	16	2.50	16	1.25	8	1.25	8	1.25	8	1.25	8	1.25	8		
Insecticides:																				
Asana XL	pint	17.30	0.25	4	0.50	9	0.50	9	0.50	9	0.50	9	1.00	17	1.00	17	0.16	3		
Floramite SC	floz	1.94			6.00	12	6.00	12	6.00	12	6.00	12	6.00	12	6.00	12	0.90	2		
Fungicides:																				
Bravo Weather Stik	pint	7.97							2.00	16	2.00	16	2.00	16	2.00	16	0.30	2		
Baits:																				
Gopher Getter Bait 1.8%	lb	7.40	0.50	4	0.50	4	0.50	4	0.25	2	0.25	2	0.25	2	0.25	2	0.25	2		
Water:																				
District Water	acin	2.76	1.00	3	1.00	3	4.00	11	4.00	11	10.00	28	18.00	50	18.00	50	2.72	8		
Labor (equipment)	hr	10.96	1.55	17	1.17	13	2.87	31	4.03	44	4.03	44	5.83	64	5.83	64	5.03	55		
Labor (general)	hr	10.96	72.50	795	20.40	224	14.40	158	108.90	1194	66.65	730	99.40	1089	685.40	7512	127.25	1395		
Fuel - Diesel	gal	1.51	1.61	2	1.21	2	2.98	4	4.19	6	4.19	6	6.06	9	6.06	9	5.22	8		
Lube			0		0		1		1		1		1		1		1			
Machinery Repair			1		1		2		3		3		4		4		3			
Operating Interest			156		27		10		37		36		39		93		19			
TOTAL			2243		496		258		1382		935		1546		10112		1879			

UC COOPERATIVE EXTENSION

Table 3. MONTHLY CASH COSTS BY YEAR TO PRODUCE CHRISTMA TREES – DOUGLAS FIR
SIERRA NEVADA FOOTHILLS – EL DORADO, Placer, Nevada counties 2005

	YEAR 1														Total Cost
	Equip. Hrs	Labor Hrs	*Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Planting Costs:															
Land Prep: Soil Test (.33/acre)	0.10	0.10	13												13
Land Prep: Mark Planting Block		5.00	55												55
Land Prep: Rip 2X (Custom)			350												350
Land Prep: Disk	0.41		7												7
Plant: Labor		40.00	438												438
Plant: Trees (1,742/acre)			871												871
Plant: Install & Remove Shades		19.00	208												208
TOTAL PLANTING COSTS	0.51	64.10	424	1,518	0	1,942									
Cultural Costs:															
Weed: Over Top (Atrazine)	0.19				17										17
Insect: Aphid (Asana)	0.19						7								7
Weed: Spot Spray (Roundup)	0.39							11		11					22
Vertebrate: Gopher (Bait)		2.00						13				13			26
Irrigate: Drip		2.40							7	7	7	7			29
Weed: Hand		4.00								44					44
TOTAL CULTURAL COSTS	0.77	10.40	0	0	17	7	24	7	51	18	20	0	0	0	145
Interest On Operating Capital @ 7.65%			3	12	12	13	13	13	13	13	13	13	13	13	156
TOTAL OPERATING COSTS/ACRE			9	1,530	29	20	36	20	64	31	33	13	13	13	2,243
*Includes operations done in prior year: Aug to Dec.															
	YEAR 2														Total Cost
	Equip. Hrs	Labor Hrs	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Plant: Labor		6.00		66											66
Plant: Trees (1,742/acre)				174											174
TOTAL PLANTING COSTS	0.00	6.00	0	240	0	240									
Cultural Costs:															
Weed: Over Top (Atrazine)	0.19				17										17
Insect: Aphid (Asana)	0.19						12								12
Weed: Spot Spray (Roundup)	0.39							11		11					22
Vertebrate: Gopher (Bait)		2.00						13				13			26
Prune: Double Headers		6.00							66						66
Irrigate: Drip		2.40							7	7	7	7			29
Weed: Hand		4.00								44					44
Insect: Mites (Floramite)	0.19									15					15
TOTAL CULTURAL COSTS	0.96	14.40	0	0	17	12	24	73	66	18	20	0	0	0	230
Interest On Operating Capital @ 7.65%			0	2	2	2	2	2	3	3	3	3	3	3	27
TOTAL OPERATING COSTS/ACRE			0	241	19	14	26	75	69	21	23	3	3	3	496

UC COOPERATIVE EXTENSION

Table 3 continued

		YEAR 3												Total		
		Equip.	Labor	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Cost
		Hrs	Hrs													
Cultural Costs:																
Insect: Aphid (Asana)			1.00				25									25
Weed: Spot Spray (Roundup)		0.39						11			11					22
Vertebrate: Gopher (Bait)			2.00					13				13				26
Prune: Double Headers			6.00						66							66
Irrigate: Drip			2.40						9	9	9	9				37
Weed: Hand			4.00							44						44
Insect: Mites (Floramite)		1.00								28						28
TOTAL CULTURAL COSTS		1.39	15.40				25	24	75	81	20	22	0	0	0	247
Interest On Operating Capital @ 7.65%							0	0	1	1	1	2	2	2	2	10
TOTAL OPERATING COSTS/ACRE							25	24	76	82	22	24	2	2	2	258

		YEAR 4												Total		
		Equip.	Labor	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Cost
		Hrs	Hrs													
Cultural Costs:																
Fertilize: Urea		0.17	0.50					48								48
Insect: Aphid (Asana)			1.00				25									25
Weed: Spot Spray (Roundup)		0.19						11								11
Vertebrate: Gopher (Bait)			1.00					13								13
Disease: Needle Cast (Bravo)			1.00					32								32
Weed: Apply Mulch			12.00					132								132
Prune: Double Headers			6.00						66							66
Prune: Basal			87.00										954			954
Irrigate: Drip			2.40						9	9	9	9				37
Insect: Mites (Floramite)			1.00							28						28
TOTAL CULTURAL COSTS		0.36	111.90				25	236	75	37	9	9	954	0	0	1,345
Interest On Operating Capital @ 7.65%							0	2	2	2	2	3	9	9	9	37
TOTAL OPERATING COSTS/ACRE							25	237	77	40	12	12	962	9	9	1,382

		YEAR 5												Total		
		Equip.	Labor	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Cost
		Hrs	Hrs													
Cultural Costs:																
Fertilize: Urea		0.17	0.50					48								48
Insect: Aphid (Asana)			1.00				25									25
Weed: Spot Spray (Roundup)		0.19						11								11
Vertebrate: Gopher (Bait)			1.00					13								13
Disease: Needle Cast (Bravo)			1.00					32								32
Prune: Keep leader in check			4.75						52							52
Shear:			58.00							636						636
Irrigate: Drip			2.40						13	13	13	13				54
Insect: Mites (Floramite)			1.00							28						28
TOTAL CULTURAL COSTS		0.36	69.65	0	0	0	25	104	66	677	13	13	0	0	0	899
Interest On Operating Capital @ 7.65%				0	0	0	0	1	1	6	6	6	6	6	6	36
TOTAL OPERATING COSTS/ACRE				0	0	0	25	105	67	683	19	19	6	6	6	935

UC COOPERATIVE EXTENSION

Table 3. continued

		YEAR 6												Total	
	Equip.	Labor	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Cost
	Hrs	Hrs													
Cultural Costs:															
Fertilize: Urea		0.17					48								48
Insect: Aphid (Asana)		2.00				25						25			50
Weed: Spot Spray (Roundup)	0.19						11								11
Vertebrate: Gopher (Bait)		1.00					13								13
Disease: Needle Cast (Bravo)		1.00					32								32
Prune: Keep leader in check		4.50						49							49
Shear:		52.00							570						570
Irrigate: Drip		2.40						19	19	19	19				76
Insect: Mites (Floramite)		1.00							28						28
TOTAL CULTURAL COSTS	0.19	64.07	0	0	0	25	104	68	617	19	19	25	0	0	877
Harvest Costs:															
Harvest: Site Preparation	0.50	1.00											39		39
Harvest: (materials & labor)		38.00												590	590
TOTAL HARVEST COSTS	0.50	39.00	0	0	0	0	0	0	0	0	0	0	39	590	629
Interest On Operating Capital @ 7.65%			0			0	1	1	5	5	5	6	6	10	39
TOTAL OPERATING COSTS/ACRE			0	0	0	25	105	70	622	24	24	30	45	600	1,546

		YEAR 7												Total	
	Equip.	Labor	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Cost
	Hrs	Hrs													
Cultural Costs:															
Fertilize: Urea	0.17	0.50					48								48
Insect: Aphid (Asana)		2.00				25						25			50
Weed: Spot Spray (Roundup)	0.19						11								11
Vertebrate: Gopher (Bait)		1.00					13								13
Disease: Needle Cast (Bravo)		1.00					32								32
Prune: Keep leader in check		4.50						49							49
Shear:		52.00							570						570
Irrigate: Drip		2.40						19	19	19	19				76
Insect: Mites (Floramite)		1.00							28						28
TOTAL CULTURAL COSTS	0.36	64.40	0	0	0	25	104	68	617	19	19	25	0	0	877
Harvest Costs:															
Harvest: Site Preparation	0.50	1.00											39		39
Harvest: (materials & labor)		624.00												9,627	9,627
TOTAL HARVEST COSTS	0.50	625.00	0	0	0	0	0	0	0	0	0	0	39	9,627	9,666
Interest On Operating Capital @ 7.65%			0			0	1	1	5	5	5	6	6	67	97
TOTAL OPERATING COSTS/ACRE			0	0	0	25	105	70	622	24	24	30	45	9,694	10,639

UC COOPERATIVE EXTENSION

Table 3. continued

			YEAR 8												Total Cost
	Equip. Hrs	Labor Hrs	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Cultural Costs:															
Fertilize: Urea		0.17					11								11
Insect: Aphid (Asana)		0.67				7						7			14
Weed: Spot Spray (Roundup)	0.19						11								11
Vertebrate: Gopher (Bait)		1.00					13								13
Disease: Needle Cast (Bravo)		0.33					8								8
Prune: Keep leader in check		0.68						7							7
Shear:		8.00							88						88
Irrigate: Drip		2.40						8	8	8	8				34
Insect: Mites (Floramite)		0.33							7						7
TOTAL CULTURAL COSTS	0.19	13.58	0	0	0	7	42	16	103	8	8	7	0	0	192
Harvest Costs:															
Harvest: Site Preparation	0.50	1.00											39		39
Harvest: (materials & labor)		112.00												1,576	1,576
Harvest: Non-Saleable Trees	2.00	2.00												54	54
TOTAL HARVEST COSTS	2.50	115.00	0	0	0	0	0	0	0	0	0	0	39	1,629	1,668
Interest On Operating Capital @ 7.65%			0			0	0	0	1	1	1	1	1	1	19
TOTAL OPERATING COSTS/ACRE			0	0	0	7	42	16	104	10	10	8	40	1,641	1,879

UC COOPERATIVE EXTENSION
Table 4. RANGING ANALYSIS – DOUGLAS FIR
 SIERRA NEVADA FOOTHILLS - EL DORADO, PLACER & NEVADA COUNTIES 2005

COSTS PER ACRE AT VARYING YIELD TO PRODUCE CHRISTMAS TREES - DOUGLAS FIR

% of PLANTED TREES SOLD:	70	75	80	85	90	95	100
TOTAL TREES SOLD:	YIELD (trees/acre)						
	1,219	1,307	1,394	1,481	1,568	1,655	1,742
OPERATING COSTS:							
Cultural Cost	6,992	6,992	6,992	6,992	6,992	6,992	6,992
Harvest Cost	11,322	11,322	11,322	11,322	11,322	11,322	11,322
Interest on operating capital	418	418	418	418	418	418	418
TOTAL OPERATING COSTS/ACRE	18,733	18,733	18,733	18,733	18,733	18,733	18,733
Total Operating Costs/tree sold	15	14	13	13	12	11	11
CASH OVERHEAD COSTS/ACRE	3,308	3,308	3,308	3,308	3,308	3,308	3,308
TOTAL CASH COSTS/ACRE	22,040	22,040	22,040	22,040	22,040	22,040	22,040
Total Cash Costs/tree	18	17	16	15	14	13	13
NON-CASH OVERHEAD COSTS/ACRE	9,201	9,201	9,201	9,201	9,201	9,201	9,201
TOTAL COSTS/ACRE	31,242	31,242	31,242	31,242	31,242	31,242	31,242
Total Costs/tree sold	26	24	22	21	20	19	18

NET RETURNS PER ACRE ABOVE OPERATING COSTS

PRICE	YIELD (tree/acre)						
\$/tree	1,219	1,307	1,394	1,481	1,568	1,655	1,742
26.00	12,972	15,236	17,501	19,766	22,030	24,295	26,559
30.00	17,849	20,462	23,075	25,688	28,301	30,914	33,527
34.00	22,727	25,688	28,650	31,611	34,573	37,534	40,495
38.00	27,605	30,914	34,224	37,534	40,844	44,154	47,463
42.00	32,482	36,140	39,799	43,457	47,115	50,773	54,431
46.00	37,360	41,366	45,373	49,380	53,386	57,393	61,399
50.00	42,237	46,592	50,947	55,302	59,657	64,012	68,367

NET RETURNS PER ACRE ABOVE CASH COSTS

PRICE	YIELD (tree/acre)						
\$/tree	1,219	1,307	1,394	1,481	1,568	1,655	1,742
26.00	9,664	11,929	14,193	16,458	18,722	20,987	23,252
30.00	14,542	17,155	19,768	22,381	24,994	27,607	30,220
34.00	19,419	22,381	25,342	28,303	31,265	34,226	37,188
38.00	24,297	27,607	30,916	34,226	37,536	40,846	44,156
42.00	29,174	32,833	36,491	40,149	43,807	47,465	51,124
46.00	34,052	38,059	42,065	46,072	50,078	54,085	58,092
50.00	38,930	43,285	47,640	51,995	56,350	60,705	65,060

NET RETURNS PER ACRE ABOVE TOTAL COSTS

PRICE	YIELD (tree/acre)						
\$/tree	1,219	1,307	1,394	1,481	1,568	1,655	1,742
26.00	462	2,727	4,992	7,256	9,521	11,785	14,050
30.00	5,340	7,953	10,566	13,179	15,792	18,405	21,018
34.00	10,218	13,179	16,140	19,102	22,063	25,025	27,986
38.00	15,095	18,405	21,715	25,025	28,334	31,644	34,954
42.00	19,973	23,631	27,289	30,947	34,606	38,264	41,922
46.00	24,850	28,857	32,864	36,870	40,877	44,883	48,890
50.00	29,728	34,083	38,438	42,793	47,148	51,503	55,858

UC COOPERATIVE EXTENSION

Table 5. SAMPLE COSTS PER ACRE TO PRODUCE CHRISTMAS TREES - WHITE FIR
SIERRA NEVADA FOOTHILLS - EL DORADO, PLACER, NEVADA COUNTIES 2005

Year	Cost Per Acre										TOTAL	Your Costs	*Costs/ Tree
	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th			
Yield: Trees Per Acre								87	1,132	174	1,394		
Planting Costs:													
Land Prep: Soil Test (5)	13										13		0.01
Land Prep: Mark Planting Block	55										55		0.03
Land Prep: Rip 2X (Custom)	350										350		0.20
Land Prep: Disk	7										7		0.00
Plant: Labor	438	66									504		0.29
Plant: Trees (1,742/acre, 20% replants second year)	871	174									1,045		0.60
Plant: Install & Remove Shades	208										208		0.12
TOTAL PLANTING COSTS	1,942	240									2,181		1.25
Cultural Costs:													
Weed: Over Top (Atrazine)	17	17									34		0.02
Fertilize: Urea						48	48	48	48	11	203		0.12
Insect: Aphid (Asana)	7	12	25	25	25	25	25	50	50	14	257		0.15
Weed: Spot Spray (Roundup) (Yrs 1-3, 2X. Yrs 4+, 1X)	22	22	22	11	11	11	11	11	11	11	143		0.08
Vertebrate: Gopher (Bait) (Yrs 1-3, 2X.) Yrs 4+, 1X)	26	26	26	13	13	13	13	13	13	13	167		0.10
Weed: Apply Mulch				132							132		0.08
Prune: Double Headers		66	66	66							197		0.11
Prune: Keep leader in check					52	49	49	49	49	7	257		0.15
Shear: Some trimming with clippers to shape					55	55	55	55	55	8	282		0.16
Prune: Basal				954							954		0.55
Irrigate: Drip	29	29	32	32	37	54	54	76	76	34	453		0.26
Weed: Hand	44	44	44								132		0.08
Insect: Mites (Floramite)		15	28	28	28	28	28	28	28	7	217		0.12
TOTAL CULTURAL COSTS	145	230	242	1,259	221	283	283	330	330	105	3,426		1.97
Harvest Costs:													
Harvest: Site Preparation								39	39	39	117		0.07
Harvest: (materials & labor)								590	9,103	1,576	11,269		6.47
Harvest: Non-Saleable Trees										54	54		0.03
TOTAL HARVEST COSTS								629	9,142	1,668	11,439		6.57
Interest On Operating Capital @ 7.65%	156	27	10	32	15	15	15	15	73	23	382		0.22
TOTAL OPERATING COSTS/ACRE	2,243	497	252	1,291	236	298	298	974	9,545	1,795	17,429		10.01

UC COOPERATIVE EXTENSION

Table 5. continued

Year	Cost Per Acre										TOTAL	Your Costs	Costs/ Tree
	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th			
Yield: Trees Per Acre								87	1,132	174	1,394		
Cash Overhead Costs:													0.69
Office Expense	120	120	120	120	120	120	120	120	120	120	1,200		0.12
Advertising						30	30	30	30	30	150		0.09
Liability Insurance	27	27	27	27	27	27	27	27	27	27	268		0.15
Liability Insurance - Customer						63	63	63	63	63	313		0.18
Sanitation Fee								27	53	53	133		0.09
Water-Base Charge	16	16	16	16	16	16	16	16	16	16	163		0.09
Property Taxes	150	150	150	149	149	149	149	150	153	153	1,502		0.86
Property Insurance	10	10	10	10	10	9	9	11	12	12	104		0.06
Investment Repairs	43	43	43	43	43	43	43	44	44	44	434		0.25
TOTAL CASH OVERHEAD COSTS	366	366	366	365	365	483	483	487	492	492	4,266		2.45
TOTAL CASH COSTS/ACRE	2,609	862	618	1,657	595	778	778	1,464	10,035	2,280	19,495		11.19
INCOME/ACRE FROM PRODUCTION								2,958	38,488	5,950	47,396		27.21
NET CASH COSTS/ACRE FOR THE YEAR	2,609	862	618	1,657	595	778	778				7,898		4.53
ACCUMULATED NET CASH COSTS/ACRE	2,609	3,471	4,090	5,746	6,341	7,119	7,898	6,403					
Non-Cash Overhead Costs: (Capital Recovery)													
Land	811	811	811	811	811	811	811	811	811	811	8,114		4.66
Building	55	55	55	55	55	55	55	55	55	55	545		0.31
Tree Shades	18	18	18	18	18	18	18	18	18	18	182		0.10
Drip Irrigation System	163	163	163	163	163	163	163	163	163	163	1,631		0.94
Field Equipment/Tools	22	22	22	22	22	22	22	22	22	22	224		0.13
Balers & Tables								8	8	8	23		0.01
Equipment	64	61	61	49	49	45	45	65	104	106	648		0.37
TOTAL NON-CASH OVERHEAD COST/ACRE	1,133	1,131	1,131	1,118	1,118	1,115	1,115	1,142	1,181	1,183	11,367		6.53
TOTAL COST/ACRE FOR THE YEAR	3,742	1,993	1,749	2,775	1,713	1,893	1,893	2,606	11,216	3,463	30,862		17.72
INCOME/ACRE FROM PRODUCTION								2,958	38,488	5,950	47,396		27.21
TOTAL NET COST/ACRE FOR THE YEAR		1,993	1,749	2,775	1,713	1,893	1,893						
NET PROFIT/ACRE ABOVE TOTAL COST								352	27,272	2,487	16,534		9.49
TOTAL ACCUMULATED NET COST/ACRE		1,993	3,742	6,517	8,230	10,123	12,016	11,664					

*Tree costs based on 1,742 planted trees per acre. Yr 8 costs reduced most trees have been sold

UC COOPERATIVE EXTENSION
Table 6. MATERIALS AND CUSTOM COSTS PER ACRE - WHITE FIR
 SIERRA NEVADA FOOTHILLS - El Dorado, Placer, and Nevada Counties

	Unit	\$/Unit	Year 1		Year 2		Year 3		Year 4		Year 5		Year 6		Year 7		Year 8		Year 9		Year 10	
			units	\$	units	\$	units	\$	units	\$	units	\$	units	\$	units	\$	units	\$	units	\$	units	\$
			Total Per Acre																			
OPERATING COSTS																						
Miscellaneous:																						
Soil Analysis	each	30.00	0.33	10																		
Tree Netting	each	2.00															87.00	174	1132	2264	174.00	348
Misc. Supplies	acre	20.00															1.00	20	1.00	20	1.00	20
Custom:																						
Rip	acre	175.00	2.00	350																		
Trees:																						
Tree Plugs P-1	each	0.50	1742.00	871	348.00	174																
Fertilizer:																						
46-0-0 (Urea)	lb	0.20										200.00	40	200.00	40	200.00	40	200.00	40	30.00	6	
Herbicides:																						
Atrazine 4L	pint	2.30	6.00	14	6.00	14																
Roundup Pro	pint	6.24	2.50	16	2.50	16	2.50	16	1.25	8	1.25	8	1.25	8	1.25	8	1.25	8	1.25	8	1.25	8
Insecticides:																						
Asana XL	pint	17.30	0.25	4	0.50	9	0.50	9	0.50	9	0.50	9	0.50	9	0.50	9	1.00	17	1.00	17	0.16	3
Floramite SC	floz	1.94			6.00	12	6.00	12	6.00	12	6.00	12	6.00	12	6.00	12	6.00	12	6.00	12	0.90	2
Fungicides:																						
Bravo Weather Stik																						
Baits:																						
Gopher Getter Bait 1.8	lb	7.40	0.50	4	0.50	4	0.50	4	0.25	2	0.25	2	0.25	2	0.25	2	0.25	2	0.25	2	0.25	2
Water:																						
District Water	acin	2.76	1.00	3	1.00	3	2.00	6	2.00	6	4.00	11	10.00	28	10.00	28	18.00	50	18.00	50	2.72	8
Labor (equipment)	hr	10.96	1.55	17	1.17	13	2.87	31	2.63	29	2.63	29	2.83	31	2.83	31	4.63	51	4.63	51	4.63	51
Labor (general)	hr	10.96	72.50	795	20.40	224	14.40	158	108.40	1188	13.15	144	13.40	147	13.40	147	52.40	574	638.40	6997	120.00	1315
Fuel - Diesel	gal	1.51	1.61	2	1.21	2	2.98	4	2.73	4	2.73	4	2.94	4	2.94	4	4.81	7	4.81	7	4.81	7
Lube			0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Machinery Repair			1	1	1	1	2	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3
Operating Interest			156	156	27	27	10	10	33	33	9	9	12	12	12	12	17	17	72	72	16	16
TOTAL			2243	2243	496	496	252	252	1292	1292	230	230	295	295	295	295	977	977	9543	9543	1789	1789

UC COOPERATIVE EXTENSION

Table 7. MONTHLY CASH COST BY YEAR FO PRODUCE CHRISTMAS TREES – WHITE FIR
SIERRA NEVADA FOOTHILLS - EL DORADO, PLACER, NEVADA COUNTIES 2005

	YEAR 1														Total Cost
	Equip. Hrs	Labor Hrs	*Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Planting Costs:															
Land Prep: Soil Test (.33/acre)	0.10	0.10	13												13
Land Prep: Mark Planting Block		5.00	55												55
Land Prep: Rip 2X (Custom)			350												350
Land Prep: Disk	0.41		7												7
Plant: Labor		40.00	438												438
Plant: Trees (1,742/acre)			871												871
Plant: Install & Remove Shades		19.00	208												208
TOTAL PLANTING COSTS	0.51	64.10	425	1,518	0	1,942									
Cultural Costs:															
Weed: Over Top (Atrazine)	0.19				17										17
Insect: Aphid (Asana)	0.19					7									7
Weed: Spot Spray (Roundup)	0.39						11			11					22
Vertebrate: Gopher (Bait)		2.00					13					13			26
Irrigate: Drip		2.40						7	7	7	7				29
Weed: Hand		4.00							44						44
Insect: Mites (Floramite)															0
TOTAL CULTURAL COSTS	0.77	10.40	0	0	17	7	24	7	51	18	20	0	0	0	145
Interest On Operating Capital @ 7.65%			3	12	12	13	13	13	13	13	13	13	13	13	156
TOTAL OPERATING COSTS/ACRE			427	1,530	29	20	36	20	64	31	33	13	13	13	2,243

*Includes operations in prior year: Aug to Dec.

	YEAR 2														Total Cost
	Equip. Hrs	Labor Hrs	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Plant: Labor		6.00		66											66
Plant: Trees (1,742/acre)				174											174
TOTAL PLANTING COSTS	0.00	6.00	0	240	0	0	0	0	240						
Cultural Costs:															
Weed: Over Top (Atrazine)	0.19				17										17
Insect: Aphid (Asana)	0.19					12									12
Weed: Spot Spray (Roundup)	0.39						11			11					22
Vertebrate: Gopher (Bait)		2.00					13					13			26
Prune: Double Headers		6.00						66							66
Irrigate: Drip		2.40						7	7	7	7				29
Weed: Hand		4.00							44						44
Insect: Mites (Floramite)	0.19								15						15
TOTAL CULTURAL COSTS	0.96	14.40	0	0	17	12	24	73	66	18	20	0	0	0	230
Interest On Operating Capital @ 7.65%			0	2	2	2	2	2	3	3	3	3	3	3	27
TOTAL OPERATING COSTS/ACRE			0	241	19	14	26	75	69	21	23	3	3	3	496

UC COOPERATIVE EXTENSION

Table 7. continued

		YEAR 3												Total	
	Equip.	Labor	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Cost
	Hrs	Hrs	05	05	05	05	05	05	05	05	05	05	05	05	
Cultural Costs:															
Insect: Aphid (Asana)		1.00				25									25
Weed: Spot Spray (Roundup)	0.39						11			11					22
Vertebrate: Gopher (Bait)		2.00					13				13				26
Prune: Double Headers		6.00						66							66
Irrigate: Drip		2.40						8	8	8	8				32
Weed: Hand		4.00							44						44
Insect: Mites (Floramite)	1.00								28						28
TOTAL CULTURAL COSTS	1.39	15.40	0	0	0	25	24	74	80	19	21	0	0	0	242
Interest On Operating Capital @ 7.65%			0			0	0	1	1	1	2	2	2	2	10
TOTAL OPERATING COSTS/ACRE			0	0	0	25	24	75	81	20	22	2	2	2	252

		YEAR 4												Total	
	Equip.	Labor	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Cost
	Hrs	Hrs													
Cultural Costs:															
Insect: Aphid (Asana)		1.00				25									25
Weed: Spot Spray (Roundup)	0.19						11								11
Vertebrate: Gopher (Bait)		1.00					13								13
Weed: Apply Mulch		12.00					132								132
Prune: Double Headers		6.00						66							66
Prune: Basal		87.00										954			954
Irrigate: Drip		2.40						8	8	8	8				32
Insect: Mites (Floramite)		1.00							28						28
TOTAL CULTURAL COSTS	0.19	110.40	0	0	0	25	155	74	36	8	8	954	0	0	1,259
Interest On Operating Capital @ 7.65%			0			0	1	2	2	2	2	8	8	8	33
TOTAL OPERATING COSTS/ACRE			0	0	0	25	156	75	38	10	10	962	8	8	1,292

		YEAR 5												Total	
	Equip.	Labor	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Cost
	Hrs	Hrs													
Cultural Costs:															
Insect: Aphid (Asana)		1.00				25									25
Weed: Spot Spray (Roundup)	0.19						11								11
Vertebrate: Gopher (Bait)		1.00					13								13
Prune: Keep leader in check		4.75						52							52
Shear:		5.00							55						55
Irrigate: Drip		2.40						9	9	9	9				37
Insect: Mites (Floramite)		1.00							28						28
TOTAL CULTURAL COSTS	0.19	15.15	0	0	0	25	24	61	92	9	9	0	0	0	221
Interest On Operating Capital @ 7.65%			0			0	0	1	1	1	1	1	1	1	9
TOTAL OPERATING COSTS/ACRE			0	0	0	25	24	62	93	11	11	1	1	1	230

UC COOPERATIVE EXTENSION

Table 7. continued

	YEAR 6														Total Cost
	Equip.	Labor	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	Hrs	Hrs													
Cultural Costs:															
Fertilize: Urea	0.17	0.50						48							48
Insect: Aphid (Asana)		1.00				25									25
Weed: Spot Spray (Roundup)	0.19						11								11
Vertebrate: Gopher (Bait)		1.00					13								13
Prune: Keep leader in check		4.50						49							49
Shear: Prune lightly		5.00							55						55
Irrigate: Drip		2.40						13	13	13	13				54
Insect: Mites (Floramite)		1.00							28						28
TOTAL CULTURAL COSTS	0.36	15.40	0	0	0	25	24	111	96	13	13	0	0	0	283
Interest On Operating Capital @ 7.65%			0			0	0	1	2	2	2	2	2	2	12
TOTAL OPERATING COSTS/ACRE			0	0	0	25	24	112	98	15	15	2	2	2	295
YEAR 7															
	Equip.	Labor	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Cost
	Hrs	Hrs													
Cultural Costs:															
Fertilize: Urea	0.17	0.50						48							48
Insect: Aphid (Asana)		1.00				25									25
Weed: Spot Spray (Roundup)	0.19						11								11
Vertebrate: Gopher (Bait)		1.00					13								13
Prune: Keep leader in check		4.50						49							49
Shear: Prune lightly		5.00							55						55
Irrigate: Drip		2.40						13	13	13	13				54
Insect: Mites (Floramite)		1.00							28						28
TOTAL CULTURAL COSTS	0.36	15.40	0	0	0	25	24	111	96	13	13	0	0	0	283
Interest On Operating Capital @ 7.65%			0			0	0	1	2	2	2	2	2	2	12
TOTAL OPERATING COSTS/ACRE			0	0	0	25	24	112	98	15	15	2	2	2	295
YEAR 8															
	Equip.	Labor	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Cost
	Hrs	Hrs													
Cultural Costs:															
Fertilize: Urea		0.17					48								48
Insect: Aphid (Asana)		2.00				25						25			50
Weed: Spot Spray (Roundup)	0.19						11								11
Vertebrate: Gopher (Bait)		1.00					13								13
Prune: Keep leader in check		4.50						49							49
Shear: Prune lightly		5.00							55						55
Irrigate: Drip		2.40						19	19	19	19				76
Insect: Mites (Floramite)		1.00							28						28
TOTAL CULTURAL COSTS	0.19	16.07	0	0	0	25	72	68	102	19	19	25	0	0	330
Harvest Costs:															
Harvest: Site Preparation	0.50	1.00											39		39
Harvest: (materials & labor)		38.00												590	590
TOTAL HARVEST COSTS	0.50	39.00	0	0	0	0	0	0	0	0	0	0	39	590	629
Interest On Operating Capital @ 7.65%			0	0	0	0	0	1	2	2	2	2	2	6	18
TOTAL OPERATING COSTS/ACRE			0	0	0	25	72	69	103	21	21	27	41	597	977

UC COOPERATIVE EXTENSION

Table 7. continued

	YEAR 9														Total Cost
	Equip. Hrs	Labor Hrs	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Cultural Costs:															
Fertilize: Urea	0.17	0.50					48								48
Insect: Aphid (Asana)		2.00				25						25			50
Weed: Spot Spray (Roundup)	0.19						11								11
Vertebrate: Gopher (Bait)		1.00					13								13
Prune: Keep leader in check		4.50						49							49
Shear: Prune lightly		5.00							55						55
Prune: Basal															0
Irrigate: Drip		2.40						19	19	19	19				76
Insect: Mites (Floramite)		1.00							28						28
TOTAL CULTURAL COSTS	0.36	16.40	0	0	0	25	72	68	102	19	19	25	0	0	330
Harvest Costs:															
Harvest: Site Preparation	0.50	1.00											39		39
Harvest: (materials & labor)		624.00												9,103	9,103
TOTAL HARVEST COSTS	0.50	625.00	0	0	0	0	0	0	0	0	0	0	39	9,103	9,142
Interest On Operating Capital @ 7.65%			0			0	0	1	2	2	2	2	2	60	72
TOTAL OPERATING COSTS/ACRE			0	0	0	25	72	69	103	21	21	27	41	9,163	9,543
YEAR 10															
	Equip. Hrs	Labor Hrs	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total Cost
Cultural Costs:															
Fertilize: Urea		0.17					11								11
Insect: Aphid (Asana)		0.67				7						7			14
Weed: Spot Spray (Roundup)	0.19						11								11
Vertebrate: Gopher (Bait)		1.00					13								13
Prune: Keep leader in check		0.68						7							7
Shear: Prune lightly		0.75							8						8
Irrigate: Drip		2.40						8	8	8	8				34
Insect: Mites (Floramite)		0.33							7						7
TOTAL CULTURAL COSTS	0.19	6.00	0	0	0	7	34	16	24	8	8	7	0	0	105
Harvest Costs:															
Harvest: Site Preparation	0.50	1.00											39		39
Harvest: (materials & labor)		112.00												1,576	1,576
Harvest: Non-Saleable Trees	2.00	2.00												54	54
TOTAL HARVEST COSTS	2.50	115.00	0	0	0	0	0	0	0	0	0	0	39	1,629	1,668
Interest On Operating Capital @ 7.65%			0			0	0	0	1	1	1	1	1	11	15
TOTAL OPERATING COSTS/ACRE			0	0	0	7	35	16	24	9	9	7	40	1,641	1,788

UC COOPERATIVE EXTENSION
Table 8. RANGING ANALYSIS – WHITE FIR
 SIERRA NEVADA FOOTHILLS - EL DORADO, PLACER & NEVADA COUNTIES 2005

COSTS PER ACRE AT VARYING YIELD TO PRODUCE CHRISTMAS TREES - WHITE FIR

% of PLANTED TREES SOLD:	70	75	80	85	90	95	100
	YIELD (trees/acre)						
TOTAL TREES SOLD:	1,219	1,307	1,394	1,481	1,568	1,655	1,742
OPERATING COSTS:							
Cultural Cost	5,607	5,607	5,607	5,607	5,607	5,607	5,607
Harvest Cost	11,439	11,439	11,439	11,439	11,439	11,439	11,439
Interest on operating capital	364	364	364	364	364	364	364
TOTAL OPERATING COSTS/ACRE	17,410	17,410	17,410	17,410	17,410	17,410	17,410
Total Operating Costs/tree sold	14	13	12	12	11	11	10
CASH OVERHEAD COSTS/ACRE							
TOTAL CASH COSTS/ACRE	21,676	21,676	21,676	21,676	21,676	21,676	21,676
Total Cash Costs/tree sold	18	17	16	15	14	13	12
NON-CASH OVERHEAD COSTS/ACRE							
TOTAL COSTS/ACRE	33,043	33,043	33,043	33,043	33,043	33,043	33,043
Total Costs/tree sold	27	25	24	22	21	20	19

NET RETURNS PER ACRE ABOVE OPERATING COSTS

PRICE \$/tree	YIELD (tree/acre)						
	1,219	1,307	1,394	1,481	1,568	1,655	1,742
26.00	14,294	16,559	18,823	21,088	23,352	25,617	27,882
30.00	19,172	21,785	24,398	27,011	29,624	32,237	34,850
34.00	24,049	27,011	29,972	32,933	35,895	38,856	41,818
38.00	28,927	32,237	35,546	38,856	42,166	45,476	48,786
42.00	33,804	37,463	41,121	44,779	48,437	52,095	55,754
46.00	38,682	42,689	46,695	50,702	54,708	58,715	62,722
50.00	43,560	47,915	52,270	56,625	60,980	65,335	69,690

NET RETURNS PER ACRE ABOVE CASH COSTS

PRICE \$/tree	YIELD (tree/acre)						
	1,219	1,307	1,394	1,481	1,568	1,655	1,742
26.00	10,028	12,293	14,557	16,822	19,086	21,351	23,616
30.00	14,906	17,519	20,132	22,745	25,358	27,971	30,584
34.00	19,783	22,745	25,706	28,667	31,629	34,590	37,552
38.00	24,661	27,971	31,280	34,590	37,900	41,210	44,520
42.00	29,538	33,197	36,855	40,513	44,171	47,829	51,488
46.00	34,416	38,423	42,429	46,436	50,442	54,449	58,456
50.00	39,294	43,649	48,004	52,359	56,714	61,069	65,424

NET RETURNS PER ACRE ABOVE TOTAL COSTS

PRICE \$/tree	YIELD (tree/acre)						
	1,219	1,307	1,394	1,481	1,568	1,655	1,742
26.00	-1,339	926	3,190	5,455	7,720	9,984	12,249
30.00	3,539	6,152	8,765	11,378	13,991	16,604	19,217
34.00	8,416	11,378	14,339	17,301	20,262	23,223	26,185
38.00	13,294	16,604	19,914	23,223	26,533	29,843	33,153
42.00	18,172	21,830	25,488	29,146	32,804	36,463	40,121
46.00	23,049	27,056	31,062	35,069	39,076	43,082	47,089
50.00	27,927	32,282	36,637	40,992	45,347	49,702	54,057

UC COOPERATIVE EXTENSION

Table 9. SAMPLE COSTS PER ACRE TO ESTABLISH A CHRISTMAS TREE PLANTATION - WHOLE FARM

First 12 Years

SIERRA NEVADA FOOTHILLS - El Dorado, Nevada and Placer Counties

Year	Cost Per Acre												TOTAL	*\$/Tree	
	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th			
Yield: Trees Per Acre						44	697	131	566	88				1,525	
Planting Costs:															
Land Prep: Soil Test (.33/acre)	13								6		6			25	0.01
Land Prep: Mark Planting Block	55								27		27			110	0.06
Land Prep: Rip 2X (Custom)	350								175		175			700	0.40
Land Prep: Disk	7								3		3			13	0.01
Plant: Labor	438	66							219	33	219	33		1,008	0.58
Plant: Trees (1,742/acre)	871	174							436	87	436	87		2,090	1.20
Plant: Install & Remove Shades	208								104		104			416	0.24
TOTAL PLANTING COSTS	1,942	240							971	120		120		4,363	2.50
Cultural Costs:															
Weed: Over Top (Atrazine)	17	17							8	8	8	8		68	0.04
Fertilize: Urea				24	24	48	48	29	24	5		24		227	0.13
Insect: Aphid (Asana)	7	12	25	25	25	37	37	32	29	13	16	18		276	0.16
Weed: Spot Spray (Roundup)	22	22	22	11	11	11	11	11	16	16	22	16		192	0.11
Vertebrate: Gopher (Bait)	26	26	26	13	13	13	13	13	19	19	26	19		224	0.13
Disease: Needle Cast (Bravo)				16	16	16	16	4				16		84	0.05
Weed: Apply Mulch				132								66		197	0.11
Prune: Double Headers		66	66	66						33	33	66		329	0.19
Prune: Keep leader in check					52	49	49	28	25	4				207	0.12
Shear:					345	312	312	71	27	4				1,073	0.62
Prune: Basal				954								477		1,430	0.82
Irrigate: Drip	29	29	35	35	46	65	65	55	53	31	33	33		508	0.29
Weed: Hand	44	44	44						22	22	44	22		241	0.14
Insect: Mites (Floramite)		15	28	28	28	28	28	18	14	11	14	21		232	0.13
TOTAL CULTURAL COSTS	145	230	245	1,302	560	580	580	261	237	167	196	787		5,290	3.04
Harvest Costs:															
Harvest: Site Preparation						20	19	39	19	19				117	0.07
Harvest: (materials & labor)						295	4552	1083	4552	788				11,269	6.47
Harvest: Non-Saleable Trees								27		27				54	0.03
TOTAL HARVEST COSTS						315	4,571	1,149	4,571	834				11,439	6.57
Interest On Operating Capital @ 7.65%	156	27	10	35	23	26	53	18	114	21	187	18		688	0.39
TOTAL OPERATING COSTS/ACRE	2,243	497	255	1,337	582	920	5,203	1,428	5,893	1,143	383	926		21,779	12.50

UC COOPERATIVE EXTENSION

Table 9. continued

SIERRA NEVADA FOOTHILLS - El Dorado, Nevada and Placer Counties

Year	Cost Per Acre												TOTAL	*\$/Tree	
	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th			
Yield: Trees Per Acre						44	697	131	566	88				1,525	
Cash Overhead Costs:															
Office Expense	120	120	120	120	120	120	120	120	120	120	120	120	120	1,440	0.83
Advertising Expense						30	30	30	30	30	30	30	30	210	0.12
Liability Insurance	27	27	27	27	27	27	27	27	27	27	27	27	27	322	0.18
Liability Insurance - Customer						63	63	63	63	63	63	63	63	438	0.25
Sanitation Fee						27	27	27	27	27	27	27	27	186	0.11
Water-Base Charge	16	16	16	16	16	16	16	16	16	16	16	16	16	195	0.11
Property Taxes	150	150	150	150	150	151	151	151	151	152	150	151	151	1,805	1.04
Property Insurance	10	10	10	10	10	11	11	11	11	11	10	11	11	127	0.07
Investment Repairs	43	43	43	43	43	44	44	44	44	44	43	43	43	521	0.30
TOTAL CASH OVERHEAD COSTS	366	366	366	367	367	487	488	488	489	489	486	487	487	5,245	3.01
TOTAL CASH COSTS/ACRE	2,609	863	621	1,704	949	1,407	5,691	1,916	6,382	1,631	869	1,413	1,413	22,661	13.01
INCOME/ACRE FROM PRODUCTION						1,479	19,244	4,454	19,244	2,975				47,396	27.21
NET CASH COSTS/ACRE FOR THE YEAR	2,609	863	621	1,704	949						869	1,413	1,413		
ACCUMULATED NET CASH COSTS/ACRE	2,609	3,472	4,093	5,796	6,746	6,674					869	2,281	2,281		
Non-Cash Overhead Costs (Capital Recovery):															
Land	811	811	811	811	811	811	811	811	811	811	811	811	811	9,736	5.59
Building	55	55	55	55	55	55	55	55	55	55	55	55	55	654	0.38
Tree Shades	18	18	18	18	18	18	18	18	18	18	18	18	18	218	0.13
Drip Irrigation System	163	163	163	163	163	163	163	163	163	163	163	163	163	1,957	1.12
Field Equipment/Tools	22	22	22	22	22	22	22	22	22	22	22	22	22	269	0.15
Balers & Tables						8	8	8	8	8	8	8	8	54	0.03
Equipment	64	61	61	66	66	68	67	70	84	83	62	72	72	824	0.47
TOTAL NON-CASH OVERHEAD COST/ACRE	1,133	1,131	1,131	1,135	1,135	1,145	1,145	1,147	1,161	1,161	1,140	1,149	1,149	3,976	2.28
TOTAL COST/ACRE FOR THE YEAR	3,742	1,993	1,752	2,839	2,084	2,552	6,836	3,063	7,543	2,792	2,008	2,562	2,562	26,638	15.29
INCOME/ACRE FROM PRODUCTION						1,479	19,244	4,454	19,244	2,975				47,396	27.21
TOTAL NET COST/ACRE FOR THE YEAR		1,993	1,752	2,839	2,084	1,073					2,008	2,562	2,562		
NET PROFIT/ACRE ABOVE TOTAL COST							12,408	1,391	11,701	183				20,758	11.92
TOTAL ACCUMULATED NET COST/ACRE		1,993	3,745	6,584	8,668	9,742					2,008	4,570	4,570		

*\$/tree based on 1,742 planted trees per acre

UC COOPERATIVE EXTENSION
Table 10. RANGING ANALYSIS - WHOLE FARM (Douglas & White Fir)
 SIERRA NEVADA FOOTHILLS - EL DORADO, PLACER & NEVADA COUNTIES 2005

COSTS PER ACRE AT VARYING YIELD TO PRODUCE CHRISTMAS TREES - WHOLE FARM (DF & WF)

% of PLANTED TREES SOLD:	70	75	80	85	90	95	100
	YIELD (trees/acre)						
TOTAL TREES SOLD:	1,219	1,307	1,394	1,481	1,568	1,655	1,742
OPERATING COSTS:							
Cultural Cost	9,652	9,652	9,652	9,652	9,652	9,652	9,652
Harvest Cost	11,439	11,439	11,439	11,439	11,439	11,439	11,439
Interest on operating capital	688	688	688	688	688	688	688
TOTAL OPERATING COSTS/ACRE	21,779	21,779	21,779	21,779	21,779	21,779	21,779
Total Operating Costs/tree	18	17	16	15	14	13	13
CASH OVERHEAD COSTS/ACRE	5,245	5,245	5,245	5,245	5,245	5,245	5,245
TOTAL CASH COSTS/ACRE	27,024	27,024	27,024	27,024	27,024	27,024	27,024
Total Cash Costs/tree sold	22	21	19	18	17	16	16
NON-CASH OVERHEAD COSTS/ACRE	3,976	3,976	3,976	3,976	3,976	3,976	3,976
TOTAL COSTS/ACRE	31,000	31,000	31,000	31,000	31,000	31,000	31,000
Total Costs/tree sold	25	24	22	21	20	19	18

NET RETURNS PER ACRE ABOVE OPERATING COSTS

PRICE \$/tree	YIELD (tree/acre)						
	1,219	1,307	1,394	1,481	1,568	1,655	1,742
26.00	9,925	12,190	14,454	16,719	18,983	21,248	23,513
30.00	14,803	17,416	20,029	22,642	25,255	27,868	30,481
34.00	19,680	22,642	25,603	28,564	31,526	34,487	37,449
38.00	24,558	27,868	31,177	34,487	37,797	41,107	44,417
42.00	29,435	33,094	36,752	40,410	44,068	47,726	51,385
46.00	34,313	38,320	42,326	46,333	50,339	54,346	58,353
50.00	39,191	43,546	47,901	52,256	56,611	60,966	65,321

NET RETURNS PER ACRE ABOVE CASH COSTS

PRICE \$/tree	YIELD (tree/acre)						
	1,219	1,307	1,394	1,481	1,568	1,655	1,742
26.00	4,680	6,945	9,210	11,474	13,739	16,003	18,268
30.00	9,558	12,171	14,784	17,397	20,010	22,623	25,236
34.00	14,436	17,397	20,358	23,320	26,281	29,243	32,204
38.00	19,313	22,623	25,933	29,243	32,552	35,862	39,172
42.00	24,191	27,849	31,507	35,165	38,824	42,482	46,140
46.00	29,068	33,075	37,082	41,088	45,095	49,101	53,108
50.00	33,946	38,301	42,656	47,011	51,366	55,721	60,076

NET RETURNS PER ACRE ABOVE TOTAL COSTS

PRICE \$/tree	YIELD (tree/acre)						
	1,219	1,307	1,394	1,481	1,568	1,655	1,742
26.00	704	2,969	5,233	7,498	9,763	12,027	14,292
30.00	5,582	8,195	10,808	13,421	16,034	18,647	21,260
34.00	10,459	13,421	16,382	19,344	22,305	25,266	28,228
38.00	15,337	18,647	21,957	25,266	28,576	31,886	35,196
42.00	20,215	23,873	27,531	31,189	34,847	38,506	42,164
46.00	25,092	29,099	33,105	37,112	41,119	45,125	49,132
50.00	29,970	34,325	38,680	43,035	47,390	51,745	56,100

UC COOPERATIVE EXTENSION
Table 11. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT,
 SIERRA NEVADA FOOTHILLS - EL DORADO, PLACER & NEVADA COUNTIES 2005

ANNUAL EQUIPMENT COSTS

Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead		Total
						Insur- ance	Taxes	
05	23 HP 4WD Tractor	17,000	20	2,181	1,424	66	96	1,586
05	Disk 5 ft. 3 pt.	850	20	44	73	3	4	81
05	Harrow 5 ft	500	20	26	43	2	3	47
05	Spray Boom 10'	350	20	18	30	1	2	33
05	Sprayer Pull 50 gal	2,000	20	104	172	7	11	189
05	Trailer – 1 axle	1,500	20	78	128	5	8	142
TOTAL		22,200		2,451	1,870	85	123	2,079
60 % of New Cost*			1,471	1,122	51	74	1,247	1,259

*Used to reflect a mix of new and used equipment

ANNUAL INVESTMENT COSTS

Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead			Total
					Insur- ance	Taxes	Repairs	
Balers & Tables (3)	900	10		122	3	5	18	148
Building 480 sqft	12,000	30		873	41	60	240	1,214
Drip Irrigation System (16 acres)	19,200	10		2,610	66	96	384	3,156
Land (Agricultural - 18 acres)	216,000	30	216,000	12,982	0	2,160	0	15,142
Field Equipment/Tools	2,000	7		358	7	10	40	415
Tree Shades (3,500)	1,225	5		291	4	6	25	326
TOTAL INVESTMENT	251,325		216,000	17,236	122	2,337	707	20,401

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/		Price/ Unit	Total Cost
	Farm	Unit		
Advertising	16	acre	30.00	480
Liability Insurance - Customer	16	acre	62.50	1000
Liability Insurance - Farm	16	acre	26.81	429
Office Expense	16	acre	120.00	1,920
Water-Base Charge	16	acre	16.27	260
Sanitation Fees	16	acre	26.56	425