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AVOCADO SAMPLE ESTABLISHMENT AND PRODUCTION COSTS AND PROFITABILITY ANALYSIS FOR SAN DIEGO AND RIVERSIDE COUNTIES, 2011

CONVENTIONAL PRODUCTION PRACTICES

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UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

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Based on data collected in 2011

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The authors wish to express their appreciation to those cooperators who provided data and review in the development of this study. To simplify information, trade names of some products have been used in this report. No endorsement of named product is intended, nor did criticism imply of similar products that are not mentioned.

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ABSTRACT

There is a growing concern that the fast expanding and globalized competitive world market is causing decline in grower returns and expansion of urban development and environmental regulations causing production cost increases and challenging the viability and sustainability of producing these crops. San Diego and Riverside counties are among the top avocado producing counties in California. These counties make up 49% of the California avocado industry; grossing over $268 million in 2011. It has been over 10 years since we developed a cost study for avocados in California. The establishment and production costs and profitability analyses have been the fundamental tool that growers and investors use for investment analyses and decisions, conducting business transactions, and risk management strategies. In this study, we provide up to date costs of establishment and production and profitability; benchmark indicators for evaluating the viability and sustainability of avocado production. This study is based on assumptions of orchard establishment and production practices that are considered typical in San Diego and Riverside counties and is based on a 20 acres orchard. Data regarding production practices, inputs and prices was collected from growers, the University of California Cooperative Extension (UCCE) farm advisor, agricultural institutions, and supply and equipment dealers. 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 of all producers.

INTRODUCTION

According to the California Avocado Commission (CAC), there are currently 51,800 producing acres, 3,210 acres of new plantings, and 7,830 acres are in topped/stumped condition in California for 2011. Acreage has declined by about 6000 acres since year 2001. San Diego County has the highest acreage with about 23,010 acres (17,400 producing acres) whereas Riverside County has about 7,700 acres (6,380 producing acres). Together these counties make up for 49% of the avocado industry in California.

Most orchards in San Diego and Riverside counties are producing trees. The total acreage in these counties is 30,710 of which 23,780 acres (77.43% of total) are producing, some 5,900 acres (19.21% of total) have been stumped/topped, and new plantings are 1,030 acres (3.36% of total). We developed this study for growers, prospective growers, agricultural lenders, educators and all who are involved or have interest with the establishment and production of avocados in San Diego and Riverside counties. This study provides establishment and production practices, and estimates of financial requirements for establishing an avocado orchard and producing avocados. It also provides analyses of profitability.

This study is based on assumptions of typical conventional practices for establishing and producing avocados in San Diego and Riverside counties in 2011. We are assuming that the production practices and costs are similar for both counties in most cases except for lower water cost in Riverside County. The assumptions of the typical practices were based on data we collected from growers and the UCCE farm advisor in the fall of 2011 and reviewed in 2012. While the assumptions outlined in this study may not fit all conditions, they represent current trends of production and the methodology can easily be adapted to address individual situations,

and analyze expenditures, profits, and investments. When practices deviate from those give in this study, growers can substitute their own costs in the "Your Cost" column in the tables. They can compare their costs with ours, analyze the reasons for the differences, and make adjustments if necessary.

ASSUMPTIONS

The discussion in these sections includes production practices; inputs, application rates, time of application, and methods. Input prices, contract fees and service expenses are based on 2011 prices.

ORCHARD SPECIFICATION

This study is based on 21 acres on steep sloped hillside avocado plantings in San Diego and Riverside counties. Twenty of the twenty-one acres will be in the actual avocado production and one acre in roads and farmstead. For an avocado orchard this size the majority of growers will have their house on the grove, however, we have made an effort to separate the household costs from orchard costs.

ESTABLISHMENT AND PRODUCTION PRACTICES

Land preparation. In San Diego and Riverside counties there have been very little avocado orchard establishment on new open land since 2001. If new orchards are planted, they are commonly planted on previous avocado ground. Whereas new planting on previous avocado grounds have roads and drainage systems already in place, we want the study to represent planting on new and open land in which case costs of establishment include new road building and drainage system installations.

The typical land preparation for an avocado orchard planting includes the following. Brush will be crushed by a crawler tractor to leave organic residue on the surface and help with erosion control. During the first year of establishment, orchard layout including planting spaces, installation of the irrigation and drainage systems and grading for erosion control are designed. Erosion control methods include paving the roads, installing drainage systems, and seeding the exposed areas of the ground. During the first year, these operations are done twice, most likely in Dec (1.5 hours) and Jan (1.5 hours) and are estimated to take 3 hours per acre. Erosion control is done throughout the life of the orchard and includes cleaning drains and sand bagging. From the second year onward, these operations are estimated to take 3 hours per acre and done in December and January. Roads are constructed before planting and strategically designed for easy travel access to people, trucks, equipment and ATVs in the orchard. The majority of the land preparation operations including irrigation and drainage system installations are done by contactors. The cost of clearing land, road building, and orchard layout is estimated to be $2,500 per acre. Installation of the irrigation and drainage systems is included in the cost of the irrigation system.

Planting. Planting space varies among growers in San Diego and Riverside counties. In the past, the common planting space was about 20'x 15' with 145 trees per acre. In recent years, there have been some trials on narrow space plantings. For this study, we used a spacing of

20'x15' with 145 trees per acre. Hass trees grafted onto clonal rootstock are the most common type used in these regions and in the major avocado producing counties of California.

Planting operations includes digging holes for plants with shovels and transporting the trees to the sites for planting. Moist backfill soil is placed in the holes and compressed to remove air pockets. Trees are planted in the holes along with stakes and then wrapped. Gypsum ($0.012 per pound) is applied to create conditions that suppress development of root rot. Two thousand one hundred and seventy-five pounds of gypsum (15 pounds per tree) is applied per acre and it takes about 12 hours per acre (5 minutes per tree) for hand applications. A layer of mulch in the tree rows is applied to help the soil retain moisture and contain weeds. Mulch also suppresses the development of root rot and reduces the adverse effects of saline soil and water (IPM, 2011). Mulch is applied in the first and third year. Each time, it is applied at 200 cubic yards per acre at a price of $2.50 per cubic yard. It costs $200 per acre for contractors to apply the mulch.

Clonal rootstock trees with wraps cost $27.50 per unit and stakes (2x2x6ft) cost $2.20 per unit based on bulk purchase price. Digging, planting, wrapping, and staking the trees are estimated to take 36.25 hours per acre (15 minutes per tree)

During the second year, some replanting of trees will take place to replace lost trees. For this study, 5 trees are replaced per acre. The price of replacement trees with wraps remains the same. Re-planting time also remains the same at 15 minutes per tree (a total of 1.25 hours per acre). Growers can also use the stakes and mulch used in the first year for the replaced trees.

Pruning. Pruning begins in establishment year 4. Pruning is needed for improving yield for profitability, reducing fertilization needs, and maximizing tree-bearing surfaces (Dixon, 2011). Pruning consists of removing deadwood and overcrowding branches, and creation and maintenance of desirable structure and size. Growers in these regions typically prune once per year in March starting in establishment year 4. Pruning is considered to take 6 minutes per tree in year 4; 7 minutes per tree in year 5; 9 minutes per tree in year 6; and pruning is considered to be done in January (11 minutes per tree) and June (5 minutes per tree) during production years.

Table A. Per Acre and Per Tree Irrigation Water Application by Age of Tree in San Diego and Riverside Counties

Year	Acre-Inches per Acre per Year	Gallons per tree per year
1	6	1124
2	11	2060
3	16	2996
4	21	3933
5	26	4869
6	32	5993
7+	42	7865

IRRIGATION

Irrigation System. The cost of irrigation system varies depending on where farmers purchase their system and parts. Information for irrigation system and parts were gathered from various supply companies in these regions. We used $2,660 per acre including installation for an irrigation system (drippers and micro sprinklers included).

The irrigation system is installed before planting in the first year of establishment. During year 1, one dripper is placed at root ball on one side of the tree. In year 2, a second dripper is added on the opposite side of the tree. In year 3, the drippers are replaced with micro sprinklers. One micro sprinkler per tree, emitting on average 10 to 15 gallons of water per hour is used. Water should not wet the tree trunk in order to prevent diseases.

Irrigation Water Application Rate and Prices. The price of water varies depending on source (wells or district water), method, and pumping distances to the orchard. It also depends on pumping capacity, pump size, and elevation. In San Diego and Riverside counties, irrigation water source varies including purchase from local district and pumping from wells. Growers with orchards of over 25 acres are most to likely have their own wells. Water cost in San Diego County is estimated at $1,200 per acre-foot ($100 per acre-inch) and $650 per acre-foot ($54 per acre-inch) for Riverside County; rates we arrived at based on information provided by growers, the UCCE farm advisor, and various water districts in these regions. Irrigation water use in San Diego and Riverside counties by tree age is presented in Table A.

Frequency and amount of irrigation depends on weather, rainfall, and location. Typically, growers irrigate from March through November. Number of irrigations in this study includes 58 irrigations from the first year of establishment throughout production years. Irrigation labor includes walking in the orchard to inspect the system, water flow, fixing leaky problems, or cleaning emitter clogs caused by rodents, insects, and chemical precipitations. Labor hours for irrigation are estimated at 14.50 hours per acre per year (15 minutes per irrigation per acre).

Pest Management. There are varieties of pests found in California avocado orchards. Some common types of pests include loopers, moths, thrips, persea mites, gophers, and squirrels. In California, avocado orchards are under good biological control due to beneficial insects that preys on harmful pests like the omnivorous looper and amorbia moth. The main pest issues in these study areas include avocado thrips and persea mites' reoccurrences. Thrips and persea mites control method for avocado production includes application of insecticides such as abamectin (Agri-Mek) mixed with 1% narrow range 415 oil (NR415) once per year in April beginning in establishment year 3 when trees reach bearing age. Fifteen ounces of abamectin ($1 per ounce) and 1 gallon of NR415 oil ($10 per gallon) is applied per acre by aerial application ($125 per acre by helicopter). Growers in these regions also consult and contract with pest control advisors to monitor pest population levels in the orchard and release beneficial insects as needed. We estimated pest control advisors charge $36 per acre per year starting from the third year of establishment.

Rodents (gopher and ground squirrel) also cause problems in avocado orchards. According to UC Integrated Pest Management program experts, gopher control is needed to prevent damage to young trees, their gnawing can damage sprinklers, and their tunnels can divert and carry off irrigation water. Gopher control is particularly needed during the first three years of establishment. Two gopher traps per acre are needed and set up during the first year of establishment after planting. Each trap costs $7.50 per unit. The costs of traps are spread over the first three years of establishment ($5 per acre per year); however, the traps can last up to ten years. Labor hours to check traps and collect dead gophers are estimated at 2 hours per acre per year (10 minutes per acre per month).

In addition, squirrel control is needed throughout the tree life or until squirrels are under control. Traps and anticoagulant bait are used for squirrel control in order to prevent tunneling through soil and erosion problems. Typically, one bait station with baits serves one acre. Each of the bait station costs $2.30 and can last up to 10 years; therefore, the cost per acre per year becomes $0.23. Anticoagulant bait is applied monthly throughout the year. Total bait application is 2.64

pounds per acre per year (0.22 pound per application per month) and cost $3 per pound. Traps are set during the first year of establishment; one squirrel trap ($20 per trap) is set between two acres ($10 per acre) and lasts up to ten years before replacement. Therefore, the costs are spread over ten years at $1 per acre per year. It takes about 1.5 hours per acre per year (7.5 minutes per acre per month) to set trap, lay out bait station with bait, replenish bait, and collect dead squirrels during the first year of establishment. From the second year onward, it also takes 1.5 hours per acre per year (7.5 minutes per acre per month) to collect dead squirrels. Dead squirrels may also be collected throughout the year during other operations such as pruning, irrigation, and weed control.

There may be other pests present in avocado orchards of these study areas; therefore, growers can adjust their cost of pest management as applicable. For more information on pesticide use permits, contact your County Agricultural Commissioner's office or Cooperative Extension farm advisors. The University of California also has pest management information on the UC Statewide Integrated Pest Management Program website at: http://www.ipm.ucdavis.edu/PMG/selectnewpest.avocado.html.

Weed Management. Weeds can harbor insect pest and make it difficult for rodent control. Too much weed also interferes with efficient application of irrigation water to the avocado trees. The two typical weed management practices include herbicide applications and weed whipping. Herbicide is sprayed three times per year during February, May, and August. Each herbicide application consists of about 10 ounces of generic glyphosate and water mixture. Generic glyphosate costs $0.11 per ounce based on bulk purchase price. We estimated about 4.5 hours (1.50 hours per application) for 3 herbicide applications per acre per year.

Table B. Nitrogen (N) Application Rate per Tree and per Acre per Year. CAN-17% Application Rate per Tree and per Acre per Year by Pounds and Gallons.

Year	Pounds of N per tree per year	Pounds of N per acre per year	Pounds of CAN-17% per tree per year	Pounds of CAN-17% per acre per year	Gallons of CAN-17% per tree per year	Gallons of CAN-17% per acre per year
1	0.15	21.75	0.88	127.87	0.07	10.12
2	0.30	43.50	1.76	255.74	0.14	20.23
3	0.45	65.25	2.65	383.60	0.21	30.35
4	0.60	87.00	3.53	511.42	0.28	40.46
5	0.75	108.75	4.41	639.35	0.35	50.58
6	0.90	130.50	5.29	767.21	0.42	60.70
7+	1.05	152.25	6.17	895.09	0.49	70.81

1 gallon of CAN-17% weight 12.64lbs and contain 2.15lbs of Nitrogen.
Pounds of N per acre per year is calculated by taking pounds of CAN17% per acre per year and multiplying by 17%.
Gallons of CAN-17% per acre per year is calculated by taking the number of gallons and multiplying by 12.64lbs/gallon. Due to rounding calculations for pounds and gallons of CAN-17% may be off but still within range of accuracy.

Weed cutting is done once per year in March using a weed whip. We estimated 2 hours per acre per year to weed whip for establishment years 1 through 5; and 1 hour per acre per year for year 6 through production years. Weed management will most likely reduce because the canopy shade will reduce weed growth.

Fertilization. The amount of fertilizer applied increases with age of trees. Per our discussion with growers, we assume fertilization takes place on a 9-month applications program from February to October. Calcium ammonium nitrate (CAN-17%) is the most commonly used material for Nitrogen (N) in San Diego and Riverside counties. CAN-17% costs $2.75 per gallon based on bulk purchase price in 2011. Table B presents the amount of annual CAN-17% fertilizer that provides the N per tree and per acre. CAN-17% is applied through the irrigation system.

In addition, zinc sulfate 12% is applied once every five years if leaf analysis determines zinc deficiency. For this study, five gallons of zinc sulfate 12% is applied once in May during the 5th year of establishment through the irrigation system. Zinc sulfate 12% cost $4.60 per gallon based on bulk purchase price.

Root Rot Treatment. For treatment of root rot, 2 gallons of potassium phosphite is applied per acre per year until trees are healthy. For this study, potassium phosphite is applied through the irrigation system two times per year in May (1 gallon) and September (1 gallon). Potassium phosphite costs $30 per gallon.

Road Repairs. For this study, road repairs are done during establishment year 2, 4, 5 and production years. Contract road repair costs about $38 per acre per year.

HARVESTING AND MARKETING

Table C. Typical Yield for San Diego and Riverside Counties using Conventional Production Practices, 2011

Year	Yield (lbs./acre)
3	700
4	2900
5	4300
6	5800
7+ (maturity)	9000

Yield. Fruit bearing begins in the third year of establishment. Table C presents the yield estimates provided by growers and the farm advisor.

Fruit bearing begins the third year of establishment; and harvesting also begins the same year. Growers in San Diego and Riverside counties typically harvest from January to August depending on weather and production level. Harvesting costs include picking, hauling, and the California Avocado Commission assessment (CAC) fee. Picking fees based on growers and the UCCE farm advisor interviews are estimated at $0.09 per pound for establishment years 3 and 4 and $0.18 per pound for establishment year 5 and throughout production years for San Diego and Riverside counties. Hauling fee is assumed at equal distant from field to the nearest packinghouse or cooling house for all counties and is estimated at $0.004 per pound. The CAC assessment fee is based on total crop value. The fee in 2011 was $0.011 for every $1.07 of crop value.

Hass Avocado Board Assessment (HAB) Fee. Some growers indicated that they pay fees to first handlers who belong to the HAB; a 2.5-cent per pound assessment fee, which will be remitted to the HAB. According to 7 U.S.C. 7801-7813, first handler is defined as a Hass avocado marketing operator that sells domestic or imported Hass avocados for United States domestic consumption, and who is responsible for remitting assessment to the HAB (2000). However, we do not have sufficient information whether all Hass avocado growers belong to HAB and whether or not they pay the HAB assessment fee. Therefore, we did not include the fee in this study. For more information on HAB assessment, growers can check with their packinghouse (first handler) to see if they are required to pay the HAB assessment.

Price. We used $1.07 per pound, the five-year CAC average price for avocados to calculate crop value.

INTEREST ON OPERATING CAPITAL. Interest on operating capital is calculated at an annual operating loan (short-term) rate of 5.75% provided by Production Credit Association for

2011. The interest on operating capital reflects borrowing costs and or opportunity costs for money used in the cultural practices for establishment of an avocado orchard and producing avocados. An opportunity cost is the return forgone by choosing to produce avocados instead of using the money on other alternative investment options.

LABOR. Labor wages are based on information gathered from growers, includes owner, and hired services. The wage rates used for this study including benefits are $14 per hour for manual labor and $18 per hour for skilled labor. Skilled laborers include pick-up truck and ATV drivers.

EQUIPMENT. The equipment complement includes pick-up truck for material deliveries and for trips to the market for supplies; and an ATV for irrigation system checks, erosion control, and rodent control. For this study, we assumed a pick-up truck is used for 7.5 hours per acre per year and the ATV is used for 15 hours per acre per year.

Equipment operating cash costs including fuel, lubrication, and repairs are calculated using formulas and coefficients developed by the American Society of Agricultural Engineer (ASAE). Repair costs are based on purchase price, annual hours use, total hours of life, and repair coefficients formulated by the ASAE. Fuel and lubrication costs are also determined by ASAE equations based on machinery horsepower (maximum PTOHP) and the type of fuel used. For this study, we used average fuel prices of $3.85 per gallon for gasoline and $3.44 per gallon for diesel, obtained from the U.S. Energy Information Administration.

CASH OVERHEAD

Office Expenses. Expenses in this category include office supplies, telephone services, faxes, photocopies, computers, bookkeeping, accounting, legal fees, and so on. Although many growers with orchards this size (20 acres) may run their business from home and may not separate the business and home overhead expenses, we made an attempt to account the business expenses separately. Office expenses are estimated at $120 per acre per year based on information gathered from growers.

Property Taxes. San Diego and Riverside counties charge a base property tax rate of 1% on the assessed value of property, including land, equipment, buildings, and improvements. There may also be additional taxes on property in special assessment districts but for this study, we calculated county taxes at 1% (the base rate) of the value of the properties.

Property Insurance. Growers also carry insurance for property protection, which is typically calculated at 7.75% of the average value of assets for 2011.

Investment Repairs. Investment repairs and maintenances are calculated at 2 to 3% of investment values as suggested in some farm management books. For buildings and tools, we calculated repairs at 2%. For the irrigation system and parts, we calculated repairs at 2%.

Interest on Establishment. Interest on establishment is also calculated using the annual operating loan (short-term) rate of 5.75% on the accumulated loan during the first six years of establishment.

Other expenses. Other overhead expenses include leaf analysis, soil analysis, liability insurance, and sanitation fees. Leaf analysis is done using a sample of about 40 leaves picked from different trees throughout the orchard and is typically conducted in September. It costs about $55 for the first 10 acres and an additional $20 for another 10 acres ($4.00 per acre for the 20 acres orchard in our study). Soil analysis is also conducted in September; it costs $70 for the first 10 acres and an additional $25 for another 10 acres ($5 per acre for the 20 acres orchard in our study). Growers also carry annual liability insurance to cover accidents. For farm size smaller than 25 acres, liability insurance costs $477 per orchard ($23.85 per acre for 20 acres orchard) per year and typically paid in June. Sanitation fees are not included in this study because the need for sanitation facility is during harvesting which is provided by harvesting contractors. Growers rarely rent sanitation facility during the remaining parts of the production year.

NON-CASH OVERHEAD COSTS

Land Rent. Currently very little new plantings are taking place on open land in San Diego and Riverside counties. Most plantings have been on land that had been previously avocado orchard; therefore, information on new land value was not available from the growers or appraisers.

Market prices for land usually show not only the production value of land but also the speculative value of land, which include its uses for non-agricultural purposes. We investigated multiple sources to come up with a reasonable land value for agricultural purposes. We used the values published by the California Chapter of the American Society of Farm Managers and Rural Appraisers annual publications on land values and leases. The land values published for avocados in San Diego and Riverside counties ranged from $14,000 to $22,000 per acre. We used the high end ($22,000) for these counties and estimated the opportunity costs (the return foregone from investing in other alternative) of land at 4.75% which is California's long-term rate of return on agricultural production assets from current income.

Ownership Costs of Farm Equipment and Investments. We used the capital recovery method to calculate ownership cost of farm equipment and investments. This method allows growers to calculate an annual amount of money to charge the enterprise so that the value of assets will be recovered within a specific period at the designated interest rate. The interest used to calculate ownership cost is 4.75%, which is California's long-term rate of return on agricultural production assets from current income. We valued the equipment complement at a 60% of new prices to reflect a mix of old and new equipment complement.

Amortized Establishment Cost. In this study, we used the first six years as establishment period. The cumulative establishment costs (accumulated costs of establishment less the gross income for years 1- 6) in San Diego County are $38,235 per acre and $32,407 per acre in Riverside County. The establishment cost is then amortized at the long-term average rate of return on agricultural production asset from current income over a 30-year productive life to determine the annual amount that must be recovered from the investment.

SUMMARY OF PRODUCTION COSTS

Our estimate of total annual production cost is $12,980 per acre for San Diego County and $10,613 for Riverside County. Production costs by type of activity and by type of inputs are presented in tables 3 and 5, respectively, for San Diego County, and in tables 4 and 6, respectively, for Riverside County.

The production costs breakdown for San Diego County includes 48% ($6,250) accounted for by cultural (production) practices (consisting of pruning, weed control, erosion control, pest control, fertilization, irrigation, and road repair); 13% ($1,762) by harvesting (picking, hauling, and marketing fees); 1% ($109.26) by interest on operating capital; 8% ($965) by cash overhead costs (liability insurance, soil analysis, leaf analysis, office expenses, property taxes, property insurance, and investment repairs) ; and 30% ($3,894) by non-cash overhead costs (annual ownership costs consist of equipment, buildings, tools, irrigation system, and amortization of accumulated tree establishment). For Riverside County, the production costs breakdown include 40% ($4,318) accounted for by cultural (production) practices; 17% ($1,762) by harvesting; 1% ($94.73) by interest on operating capital; 9% ($913) by cash overhead costs; and 33% ($3,526) by non-cash overhead costs.

PROFITABILITY ANALYSIS

We analyzed profitability of producing avocados in San Diego and Riverside counties for conventional production. We calculated break-even costs per pound and economic margins. Break-even costs allow growers to compare expected market prices with the unit cost of production. A break-even cost is the per unit cost of production; that is the total cost of production per acre divided by yield per acre.

Gross margin (or returns above cash costs) is what growers often refer to as profit if there is no debt on the farming operation. It approximates the return to management and investment. If you deduct depreciation, it also approximates taxable income. Gross margin is calculated as gross returns (price time yield) minus cash costs of production and overhead.

Economic profit or returns above total costs including management are a very useful measure of how attractive the enterprise is for potential investors and entrants into the business. Economic profit can be positive or zero. A zero economic profit should not be alarming if all costs, including the owners labor and management fees, are included in the production cost. In this study, we do not include management charges, so the return after all costs is deducted reflect returns to management. Returns to management are calculated as gross returns minus cash and non-cash costs of production.

Given the typical yield assumptions we used in this study of 9,000 pounds, the break-even cost is estimated at $1.44 per pound for San Diego County and $1.18 per pound for Riverside County. Given the five year CAC average price of $1.07 per pound, the profit margin (return to management above total costs) therefore equals about -$0.37 per pound (-$3,350 per acre) for San Diego County and equals about -$0.11 per pound (-$983 per acre) for Riverside County.

Returns above Costs. We realize that many of the avocado growers in San Diego and Riverside counties have older and mature avocado orchards; therefore may have very little or no debt on their investments in land, buildings, irrigation systems, tools, and equipment. However, we developed this cost study of establishment and production of a new avocado orchard in San Diego and Riverside counties and provide investors with up to date (2011) investment and profitability benchmarks and to reflect the opportunity cost of producing avocados.

The cost of production and profitability analyses, given our assumption planting space of 20' x 15' and yield of 9,000 pounds show that the cash costs per pound of avocado production to be $1.01 and the total costs per pound to be $1.44 for San Diego County; and $0.79 per pound for cash costs and $1.18 per pound for total costs for Riverside County. Given the five year CAC average price of $1.07 per pound for avocados, the gross margin (profit after cash costs) equals about $0.06 per pound ($544 per acre) and the net margin (returns to management - profit after all costs except management) equals about -$0.37 per pound (-$3,350 per acre) for San Diego County. For Riverside County, the gross margin equals about $0.28 per pound ($2,542 per acre) and the net margin equals about -$0.11 per pound (-$983 per acre).

Crop yield and prices received by growers vary from individual to individual. Therefore, we provided range analyses including break-even costs at various yields as well as gross margins and returns to management at various yields and price combination so that growers can approximate their orchard's profitability using the price and yield combination that would fit their operation.

Risk. There are several risks associated with producing and marketing avocados. Production risks are associated with various sources of uncertainty including insect damage, diseases, and severe frost that affect conventional production. Frost is the main production risk in San Diego and Riverside counties. The market and price of avocados are also very volatile. They are caused by factors such as increase in supply and or decrease in demand for avocados.

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 of all producers. Access to information on avocado production practices, prices, and markets are crucial for those involved in avocado production and marketing of the crop.

Future Studies – Narrow Spacing. Recently, we learned from the UCCE farm advisor in San Diego County that there are a small number of growers that increased their yield per acre through narrow spaced orchards. These are relatively new orchards and not widely adopted. Farm Advisor Gary Bender in his article titled Avocado Farming with High Priced Water (Subtropics Volume 10 No.2) wrote that he saw high yielding narrow spaced orchards, which he thought, might bring hope to avocado production for the future in San Diego and Riverside counties. He said that the costs and the knowhow of pruning would be key factors to determine profitability of such narrow spacing. With the new funding, he obtained from the California Avocado Commission to study effective pruning methods, future costs of establishment and production will incorporate this information and analyze profitability of narrow space planting of avocados in San Diego and Riverside counties.

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Table 1. Costs per Acre to Establish an Avocado Orchard in San Diego County using Conventional Production Practices in 2011

OPERATING COSTS:	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Pre-plant:						
Clear Land, Road Built, Orchard Layout	2500					
TOTAL Pre-plant COSTS	**2500**					
Plant:						
Avocado Trees, Stakes, & Labor (145 trees)	4,814					
Gypsum & Labor	194.10					
Mulch & Labor	700					
TOTAL Plant COSTS	**5,708**					
Replant:						
Replacement Trees & Labor (3% or 5 trees)		155				
TOTAL Replant COSTS		**155**				
Cultural: (materials, labor, fuel, lube, & repairs)						
Mulch & Labor			700			
Erosion Control (2x/yr.)	42	42	42	42	42	42
Weed Control - generic glyphosate (3x/yr.)	66.3	66.3	66.3	66.3	66.3	66.3
Weed Control - weed whipping	28	28	28	28	28	14
Rodent Control for Gophers - traps & labor (12x/yr.)	33	33	33			
Rodent Control for Squirrels - trap, bait station, baits, labor (12x/yr.)	30.15	30.15	30.15	30.15	30.15	30.15
Fertilizer - CAN 17% (9x/yr.)	27.8	55.63	83.44	111.27	139.10	166.90
Fertilizer - zinc sulfate 12%					23	
Root Rot Treatment - potassium phosphite (2x/yr.)	60	60	60	60	60	60
Irrigation & Walk Lines (58 irrigations/yr.)	803	1303	1803	2303	2803	3,403
Pest Control - abamectin (Agri-mek), NR-415 oil, helicopter rental			150	150	150	150
Pest Control Advisor			36	36	36	36
Orchard Pruning				203	236.74	304.5
Misc. Pickup truck (labor, fuel, lube & repairs)	223	223	223	223	223	223
Misc. ATV (labor, fuel, lube, & repairs)	451	451	451	451	451	451
Misc. Road Repairs		38		38	38	
TOTAL Cultural COSTS	**1765**	**2330**	**3706**	**3742**	**4327**	**4947**
Harvesting and Marketing Costs:						
Picking - $0.09/lb. (Yr. 3 - 4) $0.18/lb. (Yr. 5 - production years)			63	261	774	1044
Hauling - $0.004/lb.			2.8	11.6	17.2	23.2
CAC Assessment fee - $0.011 x production value			8.24	34.13	50.61	68.27
TOTAL HARVESTING AND MARKETING COSTS			**74**	**307**	**842**	**1135**
Interest on Operating Capital @ 5.75%	527.63	81.47	58.40	52.44	79.21	81.77
TOTAL OPERATING COSTS/ACRE	**10,500**	**2567**	**3,839**	**4,101**	**5,248**	**6164**

Table 1. Costs per Acre to Establish an Avocado Orchard in San Diego County using Conventional Production Practices in 2011, Cont.

CASH OVERHEAD:						
Liability Insurance	23.85	23.85	23.85	23.85	23.85	23.85
Interest on Operating Capital - cash overhead	23.35	23.35	23.35	23.35	23.35	23.35
Leaf Analysis	4	4	4	4	4	4
Soil Analysis	5	5	5	5	5	5
Office Expenses	120	120	120	120	120	120
Property Taxes	252	315	343	375	398	422
Property Insurance	116	165	186	211	229	247
Investment Repairs	81	81	81	81	81	81
Interest on Establishment		725	1041	1409	1681	1951
TOTAL CASH OVERHEAD COSTS/ACRE	**626**	**1462**	**1828**	**2252**	**2566**	**2877**
TOTAL CASH COSTS	**11126**	**4029**	**5,666**	**6,353**	**7,814**	**9042**
INCOME FROM PRODUCTION	**0**	**0**	**749**	**3103**	**4601**	**6206**
NET CASH COSTS FOR THE YEAR	**11126**	**4029**	**4,917**	**3,250**	**3,213**	**2836**
ACCUMULATED NET CASH COSTS	**11126**	**15155**	**20,072**	**23,323**	**26,535**	**29,371**
NON-CASH OVERHEAD:						
Land	1,045	1,045	1,045	1,045	1,045	1,045
Building	57.41	57.41	57.41	57.41	57.41	57.41
Tools (backpack sprayer, picking bags, shovels, etc.)	24.66	24.66	24.66	24.66	24.66	24.66
Irrigation System (system, drippers, micro sprinklers)	152.7	152.7	152.7	152.7	152.7	152.7
Equipment	197.55	197.55	197.55	197.55	197.55	197.55
TOTAL NON-CASH OVERHEAD COSTS	**1477**	**1477**	**1477**	**1477**	**1,477**	**1,477**
TOTAL COSTS/ACRE	**12603**	**5506**	**6,395**	**4,728**	**4,690**	**4,313**
TOTAL ACCUMULATED NET COST	**12603**	**18110**	**24,504**	**29,232**	**33,922**	**38,235**

Table 2. Costs per Acre to Establish an Avocado Orchard in Riverside County using Conventional Production Practices in 2011

OPERATING COSTS:	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Pre-plant:						
Clear Land, Road Built, Orchard Layout	2500					
TOTAL Pre-plant COSTS	**2500**					
Plant:						
Avocado Trees, Stakes, & Labor (145 trees)	4,814					
Gypsum & Labor	194.10					
Mulch & Labor	700					
TOTAL Plant COSTS	**5,708**					
Replant:						
Replacement Trees & Labor (3% or 5 trees)		155				
TOTAL Replant COSTS		**155**				
Cultural: (materials, labor, fuel, lube, & repairs)						
Mulch & Labor			700			
Erosion Control (2x/yr.)	42	42	42	42	42	42
Weed Control - generic glyphosate (3x/yr.)	66.3	66.3	66.3	66.3	66.3	66.3
Weed Control - weed whipping	28	28	28	28	28	14
Rodent Control for Gophers - traps & labor (12x/yr.)	33	33	33			
Rodent Control for Squirrels - trap, bait station, baits, labor (12x/yr.)	30.15	30.15	30.15	30.15	30.15	30.15
Fertilizer - CAN 17% (9x/yr.)	27.8	55.63	83.44	111.27	139.10	166.90
Fertilizer - zinc sulfate 12%					23	
Root Rot Treatment - potassium phosphite (2x/yr.)	60	60	60	60	60	60
Irrigation & Walk Lines (58 irrigations/yr.)	527	797	1067	1337	1607	1,931
Pest Control - abamectin (Agri-mek), NR-415 oil, helicopter rental			150	150	150	150
Pest Control Advisor			36	36	36	36
Orchard Pruning				203	236.74	304.5
Misc. Pickup truck (labor, fuel, lube & repairs)	223	223	223	223	223	223
Misc. ATV (labor, fuel, lube, & repairs)	451	451	451	451	451	451
Misc. Road Repairs		38		38	38	
TOTAL Cultural COSTS	**1489**	**1824**	**2970**	**2776**	**3131**	**3475**
Harvesting and Marketing Costs:						
Picking - $0.09/lb. (Yr. 3 - 4) $0.18/lb. (Yr. 5 - production years)			63	261	774	1044
Hauling - $0.004/lb.			2.8	11.6	17.2	23.2
CAC Assessment fee - $0.011 x production value			8.24	34.13	50.61	68.27
TOTAL HARVESTING AND MARKETING COSTS			**74**	**307**	**842**	**1135**
Interest on Operating Capital @ 5.75%	519.87	67.26	52.87	45.19	70.21	80.69
TOTAL OPERATING COSTS/ACRE	**10,217**	**2047**	**3,097**	**3,128**	**4,043**	**4691**

Table 2. Costs per Acre to Establish an Avocado Orchard in Riverside County using Conventional Production Practices in 2011, Cont.

CASH OVERHEAD:						
Liability Insurance	23.85	23.85	23.85	23.85	23.85	23.85
Interest on Operating Capital - cash overhead	23.35	23.35	23.35	23.35	23.35	23.35
Leaf Analysis	4	4	4	4	4	4
Soil Analysis	5	5	5	5	5	5
Office Expenses	120	120	120	120	120	120
Property Taxes	252	314	339	367	385	401
Property Insurance	116	164	183	205	219	232
Investment Repairs	81	81	81	81	81	81
Interest on Establishment		708	994	1316	1526	1716
TOTAL CASH OVERHEAD COSTS/ACRE	**626**	**1443**	**1773**	**2145**	**2387**	**2606**
TOTAL CASH COSTS	**10842**	**3490**	**4,870**	**5,273**	**6,429**	**7298**
INCOME FROM PRODUCTION	**0**	**0**	**749**	**3103**	**4601**	**6206**
NET CASH COSTS FOR THE YEAR	**10842**	**3490**	**4,121**	**2,170**	**1,828**	**1092**
ACCUMULATED NET CASH COSTS	**10842**	**14332**	**18,454**	**20,623**	**22,452**	**23,543**
NON-CASH OVERHEAD:						
Land	1,045	1,045	1,045	1,045	1,045	1,045
Building	57.41	57.41	57.41	57.41	57.41	57.41
Tools (backpack sprayer, picking bags, shovels, etc.)	24.66	24.66	24.66	24.66	24.66	24.66
Irrigation System (system, drippers, micro sprinklers)	152.7	152.7	152.7	152.7	152.7	152.7
Equipment	197.55	197.55	197.55	197.55	197.55	197.55
TOTAL NON-CASH OVERHEAD COSTS	**1477**	**1477**	**1477**	**1477**	**1,477**	**1,477**
TOTAL COSTS/ACRE	**12320**	**4967**	**5,599**	**3,647**	**3,306**	**2,569**
TOTAL ACCUMULATED NET COST	**12320**	**17287**	**22,885**	**26,532**	**29,838**	**32,407**

Table 3. Costs per Acre to Produce Avocados in San Diego County using Conventional Production Practices in 2011

UC COOPERATIVE EXTENSION

Operation	Operation Time (Hrs/A)	Cash and Labor Costs per Acre: Labor Cost	Fuel	Lube & Repairs	Material Cost	Custom/ Rent	Total Cost	Your Cost
Cultural:								
Erosion Control (2x/yr.)	3	42	0	0	0	0	42	
Weed Control - glyphosate herbicide (3x/yr.)	4.5	63	0	0	3.3	0	66.3	
Weed Control - weed whipping	1	14	0	0	0	0	14	
Rodent Control for Squirrels - trap, bait station, baits, labor (12x/yr.)	1.5	21	0	0	9.15	0	30.15	
Fertilizer - CAN 17% (9x/yr.)	0	0	0	0	194.78	0	194.78	
Root Rot Treatment - potassium phosphite (2x/yr.)	0	0	0	0	60	0	60	
Irrigation & Walk Lines (58 irrigations/yr.)	14.5	203	0	0	4,200	0	4,403	
Pest Control - abamectin (Agri-Mek), NR-415 oil, helicopter rental	0	0	0	0	25	125	150	
Pest Control Advisor	0	0	0	0	0	36	36	
Orchard Pruning	38.66	541.24	0	0	0	0	541.24	
Misc. Pickup truck (labor, fuel, lube & repairs)	7.5	162	39.38	21.83	0	0	223	
Misc. ATV (labor, fuel, lube, & repairs)	15	324	83.19	43.98	0	0	451	
Misc. Road Repairs	0	0	0	0	0	38	38	
TOTAL Cultural COSTS	**85.66**	**1370.24**	**122.57**	**65.81**	**4492.23**	**199**	**6250**	
Harvesting and Marketing Costs:								
Picking - $0.18/lb.	0	1620	0	0	0	0	1,620	
Hauling - $0.004/lb.	0	36	0	0	0	0	36	
CAC Assessment fee - $0.011 x production value	0	0	0	0	0	105.93	105.93	
TOTAL Harvest & Marketing COSTS	**0**	**0**	**0**	**0**	**1,755**	**0**	**1,762**	
Interest on Operating Capital @ 5.75%							109.26	
TOTAL OPERATING COSTS/ACRE	**81.66**	**1,314.24**	**122.56**	**66.79**	**6,247.23**	**199**	**8,121**	
CASH OVERHEAD:								
Liability Insurance							23.85	
Interest on Operating Capital - cash overhead							23.35	
Leaf Analysis							4	
Soil Analysis							5	
Office Expenses							120	
Property Taxes							443	
Property Insurance							264	
Investment Repairs							81	
TOTAL CASH OVERHEAD COSTS/ACRE							**965**	
TOTAL CASH COSTS/ACRE							**9,086**	
NON-CASH OVERHEAD:		**Per producing Acre**	**Annual Cost Capital Recovery**					
Land		22,000	1,045				1,045	
Building		1,000	57.41				57.41	
Tools		400	24.66				24.66	
Irrigation System		2,660	152.70				152.70	
Amortized Establishment Cost		38,235	2,417				2,417	
Equipment		1,430	197.55				197.55	
TOTAL NON-CASH OVERHEAD COSTS		**65,725**	**3,894**				**3,894**	
TOTAL COSTS/ACRE							**12,980**	

Table 4. Costs per Acre to Produce Avocados in Riverside County using Conventional Production Practices in 2011

UC COOPERATIVE EXTENSION

Operation	Operation Time (Hrs/A)	Cash and Labor Costs per Acre: Labor Cost	Fuel	Lube & Repairs	Material Cost	Custom/ Rent	Total Cost	Your Cost
Cultural:								
Erosion Control (2x/yr.)	3	42	0	0	0	0	42	
Weed Control - glyphosate herbicide (3x/yr.)	4.5	63	0	0	3.3	0	66.3	
Weed Control - weed whipping	1	14	0	0	0	0	14	
Rodent Control for Squirrels - trap, bait station, baits, labor (12x/yr.)	1.5	21	0	0	9.15	0	30.15	
Fertilizer - CAN 17% (9x/yr.)	0	0	0	0	194.73	0	194.73	
Root Rot Treatment - potassium phosphite (2x/yr.)	0	0	0	0	60	0	60	
Irrigation & Walk Lines (58 irrigations/yr.)	14.5	203	0	0	2,268	0	2,471	
Pest Control - abamectin (Agri-Mek), NR-415 oil, helicopter rental	0	0	0	0	25	125	150	
Pest Control Advisor	0	0	0	0	0	36	36	
Orchard Pruning	38.66	541.24	0	0	0	0	541.24	
Misc. Pickup truck (labor, fuel, lube & repairs)	7.5	162	39.38	21.83	0	0	223	
Misc. ATV (labor, fuel, lube, & repairs)	15	324	83.19	43.98	0	0	451	
Misc. Road Repairs	0	0	0	0	0	38	38	
TOTAL Cultural COSTS	**85.66**	**1370.24**	**122.57**	**65.81**	**2560.18**	**199**	**4318**	
Harvesting and Marketing Costs:								
Picking - $0.18/lb.	0	1620	0	0	0	0	1,620	
Hauling - $0.004/lb.	0	36	0	0	0	0	36	
CAC Assessment fee - $0.011 x production value	0	0	0	0	0	105.93	105.93	
TOTAL Harvest & Marketing COSTS	**0**	**0**	**0**	**0**	**0**	**106**	**1,762**	
Interest on Operating Capital @ 5.75%							94.73	
TOTAL OPERATING COSTS/ACRE	**81.66**	**1,314.24**	**122.56**	**66.79**	**6,247.23**	**199**	**6,174**	
CASH OVERHEAD:								
Liability Insurance							23.85	
Interest on Operating Capital - cash overhead							23.35	
Leaf Analysis							4	
Soil Analysis							5	
Office Expenses							120	
Property Taxes							414	
Property Insurance							242	
Investment Repairs							81	
TOTAL CASH OVERHEAD COSTS/ACRE							**913**	
TOTAL CASH COSTS/ACRE							**7,088**	
NON-CASH OVERHEAD:		**Per producing Acre**	**Annual Cost Capital Recovery**					
Land		22,000	1,045				1,045	
Building		1,000	57.41				57.41	
Tools		400	24.66				24.66	
Irrigation System		2,660	152.70				152.70	
Amortized Establishment Cost		32,407	2,048				2,048	
Equipment		1,430	197.55				197.55	
TOTAL NON-CASH OVERHEAD COSTS		**59,897**	**3,526**				**3,526**	
TOTAL COSTS/ACRE							**10,613**	

Table 5. Costs and Returns per Acre to Produce Avocados in San Diego County using Conventional Production Practices in 2011

UC COOPERATIVE EXTENSION

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre
GROSS RETURNS				
Conventional Avocados	9,000	lb	$1.07	$9,630
TOTAL GROSS RETURNS	**9,000**	**lb**		**$9,630**
OPERATING COSTS				
Custom:				**199**
Helicopter rental	1	acre	125	125
Pest Control Advisor	1	acre	36	36
Misc. Road Repair	1	acre	38	38
Water:				**4200**
San Diego water	42	ac-in	100	4200
Fertilizers:				**254.73**
CAN - 17%	70.81	gal	2.75	194.73
Potassium Phosphite	2	gal	30	60
Insecticide:				**25**
Abamectin	15	oz	1	15
NR-415 Oil	1	gal	10	10
Harvest:				**1762**
Picking	9000	lb	0.18	1620
Hauling	9000	lb	0.004	36
CAC Assessment fee	9630	production value	0.011	106
Herbicide:				**3.30**
Generic Glyphosate	30	oz	0.11	3.30
Rodenticide:				**9.15**
Squirrel Bait	2.64	lb	3	7.92
Squirrel Trap	1	acre	1	1
Squirrel Bait Station	1	acre	0.23	0.23
Labor:				**1370.24**
Equipment Operator Labor	27	hr	18	486
Manual Labor	48.66	hr	14	681.24
Irrigation Labor	14.5	hr	14	203
Machinery:				**188.38**
Fuel-Gas	31.83	gal	3.85	122.56
Fuel-Diesel	0	gal	3.44	0
Lube				18.38
Machinery Repair				47.43
Interest on Operating Capital (5.75%)				**109.26**
TOTAL OPERATING COSTS/ACRE				**8,121**
NET RETURNS ABOVE OPERATING COSTS				**1,509**
CASH OVERHEAD COSTS				
Liability Insurance				23.85
Interest on Operating Capital - cash overhead				23.35
Leaf Analysis				4
Soil Analysis				5
Office Expenses				120
Property Taxes				443
Property Insurance				264
Investment Repairs				81
TOTAL CASH OVERHEAD COSTS/ACRE				**965**
TOTAL CASH COSTS/ACRE				**9,086**
NET RETURNS ABOVE CASH COSTS				**544**
NON-CASH OVERHEAD COSTS (Capital Recovery)				
Land				1,045
Building				57.41
Tools				24.66
Irrigation System				152.70
Amortized Establishment Cost				2,417
Equipment				197.55
TOTAL NON-CASH OVERHEAD COSTS				**3,894**
TOTAL COST/ACRE				**12,980**
TOTAL COST/ Lb				**1.44**
NET RETURNS ABOVE TOTAL COST				**-3,350**

Table 6. Costs and Returns per Acre to Produce Avocados in Riverside County using Conventional Production Practices in 2011

UC COOPERATIVE EXTENSION

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre
GROSS RETURNS				
Conventional Avocados	9,000	lb	$1.07	$9,630
TOTAL GROSS RETURNS	**9,000**	**lb**		**$9,630**
OPERATING COSTS				
Custom:				**199**
Helicopter rental	1	acre	125	125
Pest Control Advisor	1	acre	36	36
Misc. Road Repair	1	acre	38	38
Water:				**2,268**
Riverside Water	42	ac-in	54	2,268
Fertilizers:				**254.73**
CAN - 17%	70.81	gal	2.75	194.73
Potassium Phosphite	2	gal	30	60
Insecticide:				**25**
Abamectin	15	oz	1	15
NR-415 Oil	1	gal	10	10
Harvest:				**1,762**
Picking	9000	lb	0.18	1,620
Hauling	9000	lb	0.004	36
CAC Assessment fee	9630	production value	0.011	106
Herbicide:				**3.30**
Generic Glyphosate	30	oz	0.11	3.3
Rodenticide:				**9.15**
Squirrel Bait	2.64	lb	3	7.92
Squirrel Trap	1	acre	1	1
Squirrel Bait Station	1	acre	0.23	0.23
Labor:				**1,370.24**
Equipment Operator Labor	27	hr	18	486
Manual Labor	48.66	hr	14	681.24
Irrigation Labor	14.5	hr	14	203
Machinery:				**188.38**
Fuel-Gas	31.83	gal	3.85	122.56
Fuel-Diesel	0	gal	3.44	0
Lube				18.38
Machinery Repair				47
Interest on Operating Capital (5.75%)				**94.73**
TOTAL OPERATING COSTS/ACRE				**6,174**
NET RETURNS ABOVE OPERATING COSTS				**3,456**
CASH OVERHEAD COSTS				
Liability Insurance				23.85
Interest on Operating Capital - cash overhead				23.35
Leaf Analysis				4
Soil Analysis				5
Office Expenses				120
Property Taxes				414
Property Insurance				242
Investment Repairs				81
TOTAL CASH OVERHEAD COSTS/ACRE				**913**
TOTAL CASH COSTS/ACRE				**7,088**
NET RETURNS ABOVE CASH COSTS				**2,542**
NON-CASH OVERHEAD COSTS (Capital Recovery)				
Land				1,045
Building				57.41
Tools				24.66
Irrigation System				152.70
Amortized Establishment Cost				2,048
Equipment				197.55
TOTAL NON-CASH OVERHEAD COSTS				**3,526**
TOTAL COST/ACRE				**10,613**
TOTAL COST/ Lb				**1.18**
NET RETURNS ABOVE TOTAL COST				**-983**

Table 7. Monthly Cash Costs per Acre to Produce Avocados in San Diego County using Conventional Production Practices in 2011

UC COOPERATIVE EXTENSION

Beginning 12-10	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Ending 12-11	**10**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	
Cultural:														
Erosion Control (2x/yr.)	21	21												42
Weed Control - glyphosate herbicide (3x/yr.)			22.1			22.1			22.1					66.3
Weed Control - weed whipping				14										14
Rodent Control for Squirrels - trap, bait station, baits, labor (12x/yr.)		3.64	2.41	2.41	2.41	2.41	2.41	2.41	2.41	2.41	2.41	2.41	2.41	30.15
Fertilizer - CAN 17% (9x/yr.)			21.64	21.64	21.64	21.64	21.64	21.64	21.64	21.64	21.64			194.78
Root Rot Treatment - potassium phosphite (2x/yr.)						30				30				60
Irrigation & Walk Lines (58 irrigations/yr.)				379.5	304	304	759	607	759	607	304	379.5		4,403
Pest Control - abamectin (Agri-Mek), NR-415 oil, helicopter rental					150									150
Pest Control Advisor				36										36
Orchard Pruning		372.12					169.12							541.24
Misc. Pickup truck (labor, fuel, lube & repairs)		18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	223
Misc. ATV (labor, fuel, lube, & repairs)		37.60	37.60	37.60	37.60	37.60	37.60	37.60	37.60	37.60	37.60	37.60	37.60	451
Misc. Road Repairs				38										38
TOTAL Cultural COSTS	**21**	**452.96**	**102.35**	**547.75**	**534.25**	**436.35**	**1008.37**	**687.25**	**861.35**	**717.25**	**384.25**	**438.11**	**58.61**	**6250**
Harvesting and Marketing Costs:														
Picking - $0.18/lb.		202.5	202.5	202.5	202.5	202.5	202.5	202.5	202.5					1,620
Hauling - $0.004/lb.		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5					36
CAC Assessment fee - $0.011 x production value		13.24	13.24	13.24	13.24	13.24	13.24	13.24	13.24					105.93
TOTAL Harvest & Marketing COSTS	**0**	**220.24**	**220.24**	**220.24**	**220.24**	**220.24**	**220.24**	**220.24**	**220.24**	**0**	**0**	**0**	**0**	**1761.93**
Interest on Operating Capital (5.75%)	0.29	9.18	4.40	10.47	10.29	8.95	16.76	12.38	15.16	9.37	5.24	5.97	0.80	109.26
TOTAL OPERATING COSTS/ACRE	**21.29**	**682.38**	**326.99**	**778.46**	**764.78**	**665.54**	**1245.36**	**919.86**	**1096.75**	**726.62**	**389.49**	**444.08**	**59.41**	**8121**
CASH OVERHEAD														
Liability Insurance							23.85							23.85
Interest on Operating Capital - cash overhead		1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	23.35
Leaf Analysis										4				4
Soil Analysis										5				5
Office Expenses		10	10	10	10	10	10	10	10	10	10	10	10	120
Property Taxes			222					222						443
Property Insurance			132					132						264
Investment Repairs		6.77	6.77	6.77	6.77	6.77	6.77	6.77	6.77	6.77	6.77	6.77	6.77	81
TOTAL CASH OVERHEAD COSTS	**0.00**	**18.71**	**372.50**	**18.71**	**18.71**	**18.71**	**42.56**	**372.50**	**18.71**	**27.71**	**18.71**	**18.71**	**18.71**	**965**
TOTAL CASH COSTS/ACRE	**21.29**	**701.09**	**699.48**	**797.17**	**783.49**	**684.25**	**1287.93**	**1292.36**	**1115.46**	**754.33**	**408.20**	**462.79**	**78.12**	**9086**

Table 8. Monthly Cash Costs per Acre to Produce Avocados in Riverside County using Conventional Production Practices in 2011

UC COOPERATIVE EXTENSION

Beginning 12-10	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Ending 12-11	**10**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	
Cultural:														
Erosion Control (2x/yr.)	21	21												42
Weed Control - glyphosate herbicide (3x/yr.)			22.1			22.1			22.1					66.3
Weed Control - weed whipping				14										14
Rodent Control for Squirrels - trap, bait station, baits, labor (12x/yr.)		3.64	2.41	2.41	2.41	2.41	2.41	2.41	2.41	2.41	2.41	2.41	2.41	30.15
Fertilizer - CAN 17% (9x/yr.)			21.64	21.64	21.64	21.64	21.64	21.64	21.64	21.64	21.64			194.73
Root Rot Treatment - potassium phosphite (2x/yr.)						30				30				60
Irrigation & Walk Lines (58 irrigations/yr.)				274.56	274.56	274.56	274.56	274.56	274.56	274.56	274.56	274.56		2,471
Pest Control - abamectin (Agri-Mek), NR-415 oil, helicopter rental					150									150
Pest Control Advisor				36										36
Orchard Pruning (2x/yr.)		372.12					169.12							541.24
Misc. Pickup truck (labor, fuel, lube & repairs)		18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	18.6	223
Misc. ATV (labor, fuel, lube, & repairs)		37.60	37.60	37.60	37.60	37.60	37.60	37.60	37.60	37.60	37.60	37.60	37.60	451
Misc. Road Repairs				38										38
TOTAL Cultural COSTS	**21**	**452.96**	**102.34**	**442.80**	**504.80**	**406.90**	**523.92**	**354.80**	**376.90**	**384.80**	**354.80**	**333.16**	**58.61**	**4318**
Harvesting and Marketing Costs:														
Picking - $0.18/lb.		202.5	202.5	202.5	202.5	202.5	202.5	202.5	202.5					1,620
Hauling - $0.004/lb.		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5					36
CAC Assessment fee - $0.011 x production value		13.24	13.24	13.24	13.24	13.24	13.24	13.24	13.24					105.93
TOTAL Harvest & Marketing COSTS	**0**	**220.24**	**220.24**	**220.24**	**220.24**	**220.24**	**220.24**	**220.24**	**220.24**	**0**	**0**	**0**	**0**	**1761.93**
Interest on Operating Capital (5.75%)	0.33	10.50	5.03	10.35	11.31	9.79	11.61	8.97	9.79	5.54	5.54	5.20	0.91	94.73
TOTAL OPERATING COSTS/ACRE	**21.33**	**683.70**	**327.62**	**673.39**	**736.35**	**636.93**	**755.77**	**584.01**	**606.93**	**390.34**	**360.34**	**338.36**	**59.52**	**6174**
CASH OVERHEAD														
Liability Insurance							23.85							23.85
Interest on Operating Capital - cash overhead		1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	1.95	23.35
Leaf Analysis										4				4
Soil Analysis										5				5
Office Expenses		10	10	10	10	10	10	10	10	10	10	10	10	120
Property Taxes			207					207						414
Property Insurance			121					121						242
Investment Repairs		6.77	6.77	6.77	6.77	6.77	6.77	6.77	6.77	6.77	6.77	6.77	6.77	81
TOTAL CASH OVERHEAD COSTS	**0.00**	**18.71**	**346.63**	**18.71**	**18.71**	**18.71**	**42.56**	**346.63**	**18.71**	**27.71**	**18.71**	**18.71**	**18.71**	**913**
TOTAL CASH COSTS/ACRE	**21.33**	**702.41**	**674.25**	**692.10**	**755.07**	**655.64**	**798.33**	**930.65**	**625.64**	**418.05**	**379.05**	**357.07**	**78.23**	**7088**

Table 9. Range Analysis: Income and Cost Analyses for Producing Avocados in San Diego County using Conventional Production Practices in 2011

UC COOPERATIVE EXTENSION

COSTS PER ACRE AND PER POUND AT VARIOUS YIELDS OF PRODUCTION

	YIELD (Lbs/acre)						
	6,300	**7,200**	**8,100**	**9,000**	**9,900**	**10,800**	**11,700**
OPERATING COSTS:							
Cultural	6,250	6,250	6,250	6,250	6,250	6,250	6,250
Harvest	1,233	1,410	1,586	1,762	1,938	2,114	2,291
Interest on operating capital @ 5.75%	102.05	104.45	106.86	109.26	111.66	114.07	116.47
TOTAL OPERATING COSTS/ACRE	**7,585**	**7,764**	**7,942**	**8,121**	**8,300**	**8,478**	**8,657**
Total Operating Costs/Lb	1.20	1.08	0.98	0.90	0.84	0.79	0.74
CASH OVERHEAD COSTS/ACRE	965	965	965	965	965	965	965
TOTAL CASH COSTS/ACRE	**8,550**	**8,729**	**8,907**	**9,086**	**9,265**	**9,443**	**9,622**
Total Cash Costs/Lb	1.36	1.21	1.10	1.01	0.94	0.87	0.82
NON-CASH OVERHEAD COSTS/ACRE	3,894	3,894	3,894	3,894	3,894	3,894	3,894
TOTAL COSTS/ACRE	**12,444**	**12,623**	**12,802**	**12,980**	**13,159**	**13,337**	**13,516**
Total Costs/Lb	1.98	1.75	1.58	1.44	1.33	1.23	1.16

RETURNS PER ACRE ABOVE OPERATING COSTS AT VARIOUS YIELDS AND PRICE COMBINDATION

PRICE($/Lb)	YIELD(Lb/acre)						
Avocados	**6300**	**7200**	**8100**	**9000**	**9900**	**10800**	**11700**
0.77	-2,734	-2,220	-1,705	-1,191	-677	-162	352
0.87	-2,104	-1,500	-895	-291	313	918	1,522
0.97	-1,474	-780	-85	609	1,303	1,998	2,692
1.07	-844	-60	725	1,509	2,293	3,078	3,862
1.17	-214	660	1,535	2,409	3,283	4,158	5,032
1.27	416	1,380	2,345	3,309	4,273	5,238	6,202
1.37	1,046	2,100	3,155	4,209	5,263	6,318	7,372

RETURNS PER ACRE ABOVE OPERATING AND CASH COSTS AT VARIOUS YIELDS AND PRICE COMBINATION

PRICE($/Lb)	YIELD(Lb/acre)						
Avocados	**6300**	**7200**	**8100**	**9000**	**9900**	**10800**	**11700**
0.77	-3,699	-3,185	-2,670	-2,156	-1,642	-1,127	-613
0.87	-3,069	-2,465	-1,860	-1,256	-652	-47	557
0.97	-2,439	-1,745	-1,050	-356	338	1,033	1,727
1.07	-1,809	-1,025	-240	**544**	1,328	2,113	2,897
1.17	-1,179	-305	570	1,444	2,318	3,193	4,067
1.27	-549	415	1,380	2,344	3,308	4,273	5,237
1.37	81	1,135	2,190	3,244	4,298	5,353	6,407

RETURNS PER ACRE ABOVE TOTAL COSTS AT VARIOUS YIELDS AND PRICE COMBINATION (RETURN TO MANAGEMENT)

PRICE($/Lb)	YIELD(Lb/acre)						
Avocados	**6300**	**7200**	**8100**	**9000**	**9900**	**10800**	**11700**
0.77	-7,593	-7,079	-6,565	-6,050	-5,536	-5,021	-4,507
0.87	-6,963	-6,359	-5,755	-5,150	-4,546	-3,941	-3,337
0.97	-6,333	-5,639	-4,945	-4,250	-3,556	-2,861	-2,167
1.07	-5,703	-4,919	-4,135	**-3,350**	-2,566	-1,781	-997
1.17	-5,073	-4,199	-3,325	-2,450	-1,576	-701	173
1.27	-4,443	-3,479	-2,515	-1,550	-586	379	1,343
1.37	-3,813	-2,759	-1,705	-650	404	1,459	2,513

Table 10. Range Analysis: Income and Cost Analyses for Producing Avocados in Riverside County using Conventional Production Practices in 2011

UC COOPERATIVE EXTENSION

COSTS PER ACRE AND PER POUND AT VARIOUS YIELDS OF PRODUCTION

	YIELD (Lbs/acre)						
	6,300	**7,200**	**8,100**	**9,000**	**9,900**	**10,800**	**11,700**
OPERATING COSTS:							
Cultural	4,318	4,318	4,318	4,318	4,318	4,318	4,318
Harvest	1,233	1,410	1,586	1,762	1,938	2,114	2,291
Interest on operating capital @ 5.75%	86.49	89.24	91.98	94.73	97.48	100.22	102.97
TOTAL OPERATING COSTS/ACRE	**5,638**	**5,817**	**5,996**	**6,174**	**6,353**	**6,532**	**6,711**
Total Operating Costs/Lb	0.89	0.81	0.74	0.69	0.64	0.60	0.57
CASH OVERHEAD COSTS/ACRE	913	913	913	913	913	913	913
TOTAL CASH COSTS/ACRE	**6,551**	**6,730**	**6,909**	**7,088**	**7,267**	**7,446**	**7,625**
Total Cash Costs/Lb	1.04	0.93	0.85	0.79	0.73	0.69	0.65
NON-CASH OVERHEAD COSTS/ACRE	3,526	3,526	3,526	3,526	3,526	3,526	3,526
TOTAL COSTS/ACRE	**10,077**	**10,256**	**10,435**	**10,613**	**10,792**	**10,971**	**11,150**
Total Costs/Lb	1.60	1.42	1.29	1.18	1.09	1.02	0.95

RETURNS PER ACRE ABOVE OPERATING COSTS AT VARIOUS YIELDS AND PRICE COMBINDATION

PRICE($/Lb)	**YIELD(Lb/acre)**						
Avocados	**6300**	**7200**	**8100**	**9000**	**9900**	**10800**	**11700**
0.77	-787	-273	241	756	1,270	1,784	2,298
0.87	-157	447	1,051	1,656	2,260	2,864	3,468
0.97	473	1,167	1,861	2,556	3,250	3,944	4,638
1.07	1,103	1,887	2,671	3,456	4,240	5,024	5,808
1.17	1,733	2,607	3,481	4,356	5,230	6,104	6,978
1.27	2,363	3,327	4,291	5,256	6,220	7,184	8,148
1.37	2,993	4,047	5,101	6,156	7,210	8,264	9,318

RETURNS PER ACRE ABOVE OPERATING AND CASH COSTS AT VARIOUS YIELDS AND PRICE COMBINATION

PRICE($/Lb)	**YIELD(Lb/acre)**						
Avocados	**6300**	**7200**	**8100**	**9000**	**9900**	**10800**	**11700**
0.77	-1,700	-1,186	-672	-158	356	870	1,384
0.87	-1,070	-466	138	742	1,346	1,950	2,554
0.97	-440	254	948	1,642	2,336	3,030	3,724
1.07	190	974	1,758	**2,542**	3,326	4,110	4,894
1.17	820	1,694	2,568	3,442	4,316	5,190	6,064
1.27	1,450	2,414	3,378	4,342	5,306	6,270	7,234
1.37	2,080	3,134	4,188	5,242	6,296	7,350	8,404

RETURNS PER ACRE ABOVE TOTAL COSTS AT VARIOUS YIELDS AND PRICE COMBINATION (RETURN TO MANAGEMENT)

PRICE($/Lb)	**YIELD(Lb/acre)**						
Avocados	**6300**	**7200**	**8100**	**9000**	**9900**	**10800**	**11700**
0.77	-5,226	-4,712	-4,198	-3,683	-3,169	-2,655	-2,141
0.87	-4,596	-3,992	-3,388	-2,783	-2,179	-1,575	-971
0.97	-3,966	-3,272	-2,578	-1,883	-1,189	-495	199
1.07	-3,336	-2,552	-1,768	**-983**	-199	585	1,369
1.17	-2,706	-1,832	-958	-83	791	1,665	2,539
1.27	-2,076	-1,112	-148	817	1,781	2,745	3,709
1.37	-1,446	-392	662	1,717	2,771	3,825	4,879

Table 11. Hourly Costs for Equipment used in Avocados Production in San Diego and Riverside Counties in 2011

UC COOPERATIVE EXTENSION

	Conventional Avocados		COSTS PER HOUR						
			Total	Cash Overhead			Operating		
Description	Hours Used	Hours Used	Capital Recovery	Insur-ance	Taxes	Lube & Repairs	Fuel	Total Oper.	Total Costs/Hr.
Truck	150	225	14.1	0.57	0.74	2.2	5.25	7.45	22.87
ATV	330	386	2.01	0.06	0.08	2.39	5.04	7.43	9.59

Table 12. Farm Investment for Producing Avocados: Values and Annual Costs based on 20 Acres in San Diego and Riverside Counties in 2011 using Conventional Production Practices

UC COOPERATIVE EXTENSION

				ANNUAL EQUIPMENT COSTS			
Description	Price	Yrs Life	Salvage Value	Capital Recovery	Insur-ance	Taxes	Total
Truck	23,600	6	9,730.79	3,172.88	129.16	166.65	3,468.69
ATV	5,000	6	1,345.30	778.2	24.59	31.73	834.51
TOTAL	**28,600**		**11,076.08**	**3,951.08**	**153.74**	**198.38**	**4,303.20**
60% of new cost*	17,160		6,645.65	2,370.65	92.244	119.028	2,581.92

*Used to reflect a mix of new and used equipment

San Diego County

				ANNUAL INVESTMENT COSTS				
Description	Price	Yrs Life	Salvage Value	Capital Recovery	Insur-ance	Taxes	Repairs	Total
INVESTMENT								
Land	440,000	36	440,000	20,900	1,906.50	4,400	0	27,206.50
Building	20,000	36	2,000	1,148.12	63.94	110	400	1,722.06
Tools	8,000	30	800	493.11	25.57	44	160	722.68
Irrigation System	53,200	36	5,320	3,054.01	170.07	292.6	1,064	4,580.68
Amortized Establishment Cost	764,700	30	0	48,336.27	2,963.21	3,823.50	0	55,122.98
TOTAL INVESTMENT	**1,285,900**		**448,120**	**73,931.51**	**5,129.29**	**8,670.10**	**1,624**	**89,354.90**

Riverside County

				ANNUAL INVESTMENT COSTS				
Description	Price	Yrs Life	Salvage Value	Capital Recovery	Insur-ance	Taxes	Repairs	Total
INVESTMENT								
Land	440,000	36	440,000	20,900	1,906.50	4,400	0	27,206.50
Building	20,000	36	2,000	1,148.12	63.94	110	400	1,722.06
Tools	8,000	30	800	493.11	25.57	44	160	722.68
Irrigation System	53,200	36	5,320	3,054.01	170.07	292.6	1,064	4,580.68
Amortized Establishment Cost	648,140	30	0	40,968.58	2,511.54	3,240.70	0	46,720.82
TOTAL INVESTMENT	**1,169,340**		**448,120**	**66,563.81**	**4,677.62**	**8,087.30**	**1,624**	**80,952.73**

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Liability Insurance	20	acre	23.85	477
Interest on Operating Capital	20	acre	23.35	467
Leaf Analysis	20	acre	4	80
Soil Analysis	20	acre	5	100
Office Expenses	20	acre	120	2400

Table 13. Operations with Equipment for Avocados Production in San Diego and Riverside Counties in 2011

UC COOPERATIVE EXTENSION

Operation	Operation Month	Implement	Labor Type	Labor Hour	Material	Rate/App/Acre	Unit
Erosion Control	Dec		Manual Labor	1.5			
Erosion Control	Jan		Manual Labor	1.5			
Weed Control - Herbicide	Feb		Manual Labor	1.5	Generic Glyphosate	10	oz
Weed Control - Herbicide	May		Manual Labor	1.5	Generic Glyphosate	10	oz
Weed Control - Herbicide	Aug		Manual Labor	1.5	Generic Glyphosate	10	oz
Weed Control - Whipping	Mar		Manual Labor	1			
Squirrel Control	Jan		Manual Labor	0.13	Squirrel Bait	0.22	lb
Squirrel Control					Squirrel Trap	1	acre
Squirrel Control					Squirrel Bait Station	1	acre
Squirrel Control	Feb		Manual Labor	0.13	Squirrel Bait	0.22	lb
Squirrel Control	Mar		Manual Labor	0.13	Squirrel Bait	0.22	lb
Squirrel Control	Apr		Manual Labor	0.13	Squirrel Bait	0.22	lb
Squirrel Control	May		Manual Labor	0.13	Squirrel Bait	0.22	lb
Squirrel Control	June		Manual Labor	0.13	Squirrel Bait	0.22	lb
Squirrel Control	July		Manual Labor	0.13	Squirrel Bait	0.22	lb
Squirrel Control	Aug		Manual Labor	0.13	Squirrel Bait	0.22	lb
Squirrel Control	Sept		Manual Labor	0.13	Squirrel Bait	0.22	lb
Squirrel Control	Oct		Manual Labor	0.13	Squirrel Bait	0.22	lb
Squirrel Control	Nov		Manual Labor	0.13	Squirrel Bait	0.22	lb
Squirrel Control	Dec		Manual Labor	0.13	Squirrel Bait	0.22	lb
Misc. Pickup truck	Jan	Truck	Equip Operator Labor	0.75			
Misc. Pickup truck	Feb	Truck	Equip Operator Labor	0.75			
Misc. Pickup truck	Mar	Truck	Equip Operator Labor	0.75			
Misc. Pickup truck	Apr	Truck	Equip Operator Labor	0.75			
Misc. Pickup truck	May	Truck	Equip Operator Labor	0.75			
Misc. Pickup truck	June	Truck	Equip Operator Labor	0.75			
Misc. Pickup truck	July	Truck	Equip Operator Labor	0.75			
Misc. Pickup truck	Aug	Truck	Equip Operator Labor	0.75			
Misc. Pickup truck	Sept	Truck	Equip Operator Labor	0.75			
Misc. Pickup truck	Oct	Truck	Equip Operator Labor	0.75			
Misc. Pickup truck	Nov	Truck	Equip Operator Labor	0.75			
Misc. Pickup truck	Dec	Truck	Equip Operator Labor	0.75			
Misc. ATV	Jan	ATV	Equip Operator Labor	1.5			
Misc. ATV	Feb	ATV	Equip Operator Labor	1.5			
Misc. ATV	Mar	ATV	Equip Operator Labor	1.5			
Misc. ATV	Apr	ATV	Equip Operator Labor	1.5			
Misc. ATV	May	ATV	Equip Operator Labor	1.5			
Misc. ATV	June	ATV	Equip Operator Labor	1.5			
Misc. ATV	July	ATV	Equip Operator Labor	1.5			
Misc. ATV	Aug	ATV	Equip Operator Labor	1.5			
Misc. ATV	Sept	ATV	Equip Operator Labor	1.5			
Misc. ATV	Oct	ATV	Equip Operator Labor	1.5			
Misc. ATV	Nov	ATV	Equip Operator Labor	1.5			
Misc. ATV	Dec	ATV	Equip Operator Labor	1.5			
Fertilization - CAN17%	Feb				CAN - 17%	7.87	gal
Fertilization - CAN17%	Mar				CAN - 17%	7.87	gal
Fertilization - CAN17%	Apr				CAN - 17%	7.87	gal
Fertilization - CAN17%	May				CAN - 17%	7.87	gal
Fertilization - CAN17%	June				CAN - 17%	7.87	gal
Fertilization - CAN17%	July				CAN - 17%	7.87	gal
Fertilization - CAN17%	Aug				CAN - 17%	7.87	gal
Fertilization - CAN17%	Sept				CAN - 17%	7.87	gal
Fertilization - CAN17%	Oct				CAN - 17%	7.87	gal
Root Rot Treatment	May				Potassium Phosphite	1	gal
Root Rot Treatment	Sept				Potassium Phosphite	1	gal
Irrigation & Walk Lines	Mar		Irrigation Labor	1.25	water	3.62	ac-in
Irrigation & Walk Lines	Apr		Irrigation Labor	1	water	2.9	ac-in
Irrigation & Walk Lines	May		Irrigation Labor	1	water	2.9	ac-in
Irrigation & Walk Lines	June		Irrigation Labor	2.5	water	7.24	ac-in
Irrigation & Walk Lines	July		Irrigation Labor	2	water	5.79	ac-in
Irrigation & Walk Lines	Aug		Irrigation Labor	2.5	water	7.24	ac-in
Irrigation & Walk Lines	Sept		Irrigation Labor	2	water	5.79	ac-in
Irrigation & Walk Lines	Oct		Irrigation Labor	1	water	2.9	ac-in
Irrigation & Walk Lines	Nov		Irrigation Labor	1.25	water	3.62	ac-in
Pest Control - Helicopter rental	Apr				Helicopter rental	1	acre
Pest Control - Abamectin					Abamectin	15	oz
Pest Control - NR415 Oil					NR-415 Oil	1	gal
PCA	Mar				Pest Control Advisor	1	acre
Orchard Pruning	Jan		Manual Labor	26.58			
Orchard Pruning	June		Manual Labor	12.08			
Misc. Road Repairs	Mar				Misc. Road Repairs	1	acre
Picking	Jan				Picking - $0.18/lb	1125	lb
Picking	Feb				Picking - $0.18/lb	1125	lb
Picking	Mar				Picking - $0.18/lb	1125	lb
Picking	Apr				Picking - $0.18/lb	1125	lb
Picking	May				Picking - $0.18/lb	1125	lb
Picking	June				Picking - $0.18/lb	1125	lb
Picking	July				Picking - $0.18/lb	1125	lb
Picking	Aug				Picking - $0.18/lb	1125	lb
Hauling	Jan				Hauling - $0.004/lb	1125	lb
Hauling	Feb				Hauling - $0.004/lb	1125	lb
Hauling	Mar				Hauling - $0.004/lb	1125	lb
Hauling	Apr				Hauling - $0.004/lb	1125	lb
Hauling	May				Hauling - $0.004/lb	1125	lb
Hauling	June				Hauling - $0.004/lb	1125	lb
Hauling	July				Hauling - $0.004/lb	1125	lb
Hauling	Aug				Hauling - $0.004/lb	1125	lb
CAC	Jan				CAC Assessment fee - $0.011	$1,203.75	production value
CAC	Feb				CAC Assessment fee - $0.011	$1,203.75	production value
CAC	Mar				CAC Assessment fee - $0.011	$1,203.75	production value
CAC	Apr				CAC Assessment fee - $0.011	$1,203.75	production value
CAC	May				CAC Assessment fee - $0.011	$1,203.75	production value
CAC	June				CAC Assessment fee - $0.011	$1,203.75	production value
CAC	July				CAC Assessment fee - $0.011	$1,203.75	production value
CAC	Aug				CAC Assessment fee - $0.011	$1,203.75	production value

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