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AVOCADO SAMPLE ESTABLISHMENT AND PRODUCTION COSTS AND PROFITABILITY ANALYSIS FOR VENTURA, SANTA BARBARA, AND SAN LUIS OBISPO COUNTIES, 2011 ORGANIC PRODUCTION PRACTICES

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UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION
AVOCADO SAMPLE ESTABLISHMENT AND PRODUCTION COSTS AND PROFITABILITY ANALYSIS FOR VENTURA, SANTA BARBARA, AND SAN LUIS OBISPO COUNTIES

ORGANIC PRODUCTION PRACTICES

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. Consult with your organic program representative before using materials mentioned in this study or any other materials. Use of organic material requires approval from **O**rganic **M**aterial **R**eview **I**nstitute. Consult your organic program representative about any questions regarding such approval.

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ABSTRACT

There has been a growing interest of organic avocado production following consumer perceived preference for organic crops. Ventura, Santa Barbara, and San Luis Obispo counties are among the top organic avocado producing counties in California. These counties make up 37% of the organic avocado industry 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 organic avocado production. This study is based on assumptions of organic avocado orchard establishment and production practices that are considered typical in Ventura, Santa Barbara, and San Luis Obispo counties and is based on 10 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 an organic 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 organic producers.

INTRODUCTION

According to the California Department of Food and Agriculture (CDFA) there are currently about 4,825 organic avocado acres in California for 2010/2011. Ventura, Santa Barbara, San Luis Obispo are among the top organic producing counties. Together they make up 37% of the 2010/2011 organic avocado industry in California. Over the past decade, there has been a slow but steady increase in organic avocado acreage. In 2001/2002, there were about 340 organic avocado acres in Ventura County, about 130 acres in Santa Barbara County, and about 10 acres in San Luis Obispo County. In 2010/2011, organic avocado acreage increased to about 1,020 in Ventura County, about 600 in Santa Barbara County, and about 145 in San Luis Obispo County.

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 organic avocados in Ventura, Santa Barbara, and San Luis Obispo counties. This study provides establishment and production practices, and estimates of financial requirements for establishing an organic avocado orchard and producing organic avocados. It also provides analyses of profitability.

This study is based on assumptions of typical organic practices for establishing and producing avocados in Ventura, Santa Barbara, and San Luis Obispo counties in 2011. We are assuming that the production practices and costs are similar for these three counties in most cases except in San Luis Obispo, we estimate a lower price of water, lower yield, and hence lower picking costs than in Ventura and Santa Barbara counties. 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 given 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, times of application, and methods. Input prices, contract fees and service expenses are based on 2011 prices.

ORCHARD SPECIFICATION

This study is based on 11 acres of flat to moderately sloped organic avocado plantings in Ventura, Santa Barbara and San Luis Obispo counties. Ten of the eleven acres are in the actual organic avocado production and one acre is 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 Ventura and Santa Barbara counties, there have been very little avocado orchard establishments on new open land since 2001. In San Luis Obispo County, it is a growing industry; hence, there have been new plantings. According to CDFA, organic avocado acreage in this county increased from 10 acres in 2002/2003 to 145 acres in 2010/2011. In Ventura and Santa Barbara counties, if new orchards are planted they are commonly planted on previous avocado ground. Whereas new plantings on previous avocado grounds would 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 systems installations.

The land is required to be void of all chemical and synthetic materials for at least 3 years and is ready for organic production. 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, installations 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 once, most likely in March 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 once per year in spring. 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 contractors. The costs of clearing land and road building are estimated to be $2,000 per acre. The cost of orchard layout is estimated to be $210 per acre (5 minutes per tree layout). Installation of the irrigation and drainage systems is included in the cost of the irrigation system.

Planting. Planting space varies among growers in Ventura, Santa Barbara, and San Luis Obispo counties. In the past, the most common planting space was about 20’x 20’ with 109 trees per

acre. In recent years, growers are using narrow space plantings. For this study, we used a spacing of 22'x11' with 180 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 of 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. 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 $28 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 30 hours per acre (10 minutes per tree).

During the second year, some replanting of trees will take place to replace lost trees. For this study, 9 trees (~5% replacement) are replaced per acre. The price of replacement trees with wraps remains the same. Re-planting time also remains the same at 10 minutes per tree (a total of 1.50 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 January starting in establishment year 4. Pruning is considered to take 5 minutes per tree in year 4; 6 minutes per tree in year 5; 8 minutes per tree in year 6 and 10 minutes per tree at maturity/production years.

Table. A Per Acre and Per Tree Irrigation Water Application by Age of Tree in Ventura, Santa Barbara, & San Luis Obispo Counties

Year	Acre-Inches per Acre per Year	Gallons per Tree per Year
1	12	1810
2	16	2414
3	20	3017
4	24	3620
5	28	4224
6	30	4526
7+	30	4526

IRRIGATION

Irrigation System. The cost of irrigation system also 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 will be replaced with micro sprinklers. One micro sprinkler per tree, emitting on average 10 to 15 gallons 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 Ventura, Santa Barbara, and San Luis Obispo counties, irrigation water source varies including purchase from the local district and pumping from wells. Growers with orchards of over 25 acres, especially in San Luis Obispo County, are most likely to have their own wells. Water cost in Ventura and Santa Barbara counties is estimated at $325 per acre-foot ($27.08 per acre-inch); a rate we arrived based on information provided by growers, the UCCE farm advisor, and various water districts in these regions. Water cost in San Luis Obispo County (per most current cost studies) ranges from $50 to $250 per acre-foot. We used $200 per acre-foot ($16.67 per acre-inch) in this study. Irrigation water use in Ventura, Santa Barbara, and San Luis Obispo counties by tree age is presented in Table A.

Frequency and amount of irrigation depends on weather, rainfall, and location. Typically, growers irrigate from April through October. Number of irrigations in this study include 60 in the first year; and 30 from second year onward; (though some growers stated that they irrigate as much as 2 times per week; 8 times per month during the summer months). 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 10 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. Thrip control methods for organic avocado production includes application of materials such as spinosad (Entrust) mixed with 1% narrow range 415 oil (NR415) once per year in March beginning in establishment year 3 when trees reach bearing age. Three ounces of spinosad ($33.87 per ounce) and 1 gallon of NR415 oil ($10 per gallon) is applied per acre by aerial application ($87 per acre by helicopter). In addition, about 4 gallons of NR415 oil is applied annually in August to control thrips and persea mites. NR415 oil costs $40 per acre ($10 per gallon) and $87 per acre for aerial application. According to the UCIPM website, NR415 oil is approved for use on organic avocado productions. However, we suggest that growers consult with your organic certifier to ensure if NR415 oil is allowed for your specific operation.

Rodents (gophers and ground squirrels) 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 organic 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. Organic bait is applied monthly throughout the year. Total bait application is 0.75 pound per acre per year (0.0625 pound per application per month) and cost $7.23 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 cost is spread over ten years at $1 per acre per year. It takes about one hour per acre per year (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 one hour per acre per year (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 the University of California 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 insects and pests and make it difficult for rodent control. Too much weed also interferes with efficient application of irrigation water to the avocado trees. The typical weed management practice for organic production is weed whipping. Weed whipping takes 3 hours per acre each time and is done four times per acre typically in February, April, June, and October during establishment years 1 through 5. As avocado trees mature, weed management will most likely reduce because the canopy shade will reduce weed growth. During the sixth year, weed whipping is reduced to three times per acre and typically done in February, June, and October. During mature/production years, weed whipping is reduced to two times per acre and typically done in February and June.

Table B. Nitrogen (N) Application Rates per Tree and per Acre Annually. Organic Fertilizer - Feathermeal (12-0-0) Application Rates per Tree and per Acre Annually.

3 Applications Program (applied in March, May, Aug)

Year	Pound of N per tree per year	Pounds of N per acre per year	Pounds of Feathermeal per tree per year	Pounds of Feathermeal per acre per year
1	0.06	10.8	0.50	90
2	0.12	21.6	1.00	180
3	0.20	36	1.67	300
4	0.31	55.8	2.58	465
5	0.61	109.8	5.08	915
6	0.92	165.6	7.67	1380
7+	0.92	165.6	7.67	1380

1 pound of feathermeal has 12% nitrogen.

Fertilization. The amount of fertilizer application increases with tree age. Per our discussion with growers, fertilization takes place on a 3-month applications program in March, May and August. Feathermeal (12%-0-0) is the most commonly used material for Nitrogen (N) in Ventura, Santa Barbara, and San Luis Obispo counties. Feathermeal costs $0.64 per pound. Table B presents the amount of annual feathermeal fertilizer that provides the N per tree and per acre. Feathermeal is hand applied. Application time depends on the weight of the feathermeal material to carry to the trees. Time to carry the material to the trees and apply the feathermeal is estimated to

range from 1.7 hours per acre during the first year of establishment to 4.5 hours per acre during the fifth year of establishment and beyond. Potassium is also applied using sulfate of potash (0-0-50). It is applied once per year in March at 100 pounds per acre through the irrigation system and costs $0.90 per pound based on bulk purchase price.

Root Rot Treatment. For treatment of root rot, growers apply gypsum annually from establishment years throughout production years. Gypsum is hand applied once per year in August at 2,700 pounds per acre (15 pounds per tree) and takes about 6 hours (2 minutes per tree) to apply. Gypsum costs $32 ($0.012 per pound) per acre.

Pollination. In Ventura, Santa Barbara, and San Luis Obispo counties, beehives are used for pollination beginning the third year of establishment. Typically, two beehives per acre are rented at an average rate of $60 per beehive.

HARVESTING, MARKETING, ORGANIC FEES, AND REIMBURSEMENTS

Table C. Typical Avocados Yield for Ventura, Santa Barbara, and San Luis Obispo Counties using Organic Production Practices

	Yield (lbs./acre)	
Year	Ventura & Santa Barbara	San Luis Obispo
3	700	600
4	2800	2500
5	5600	5000
6	8400	7600
7+	10500	9500

Yield. Fruit bearing begins in the third year of establishment. Table C presents the yield estimates provided by growers and the UCCE farm advisor. Based on our discussions with growers and the UCCE farm advisor, yield is lower in San Luis Obispo than Ventura and Santa Barbara counties. Organic avocado yield is also considered lower than the conventional production. In this study, organic avocado yield is estimated at 15% lower than the conventional yield.

Fruit bearing begins the third year of establishment; and harvesting also begins the same year. Growers in Ventura, Santa Barbara, and San Luis Obispo counties typically harvest once or twice per year depending on weather and production level. During establishment years 3 and 4, harvesting is usually done once per year in July. From establishment year 5 throughout mature production years', harvesting is done twice; once in May and once in September. Harvesting costs include picking, hauling, and the California Avocado Commission assessment (CAC) fee. Picking fees based on growers and UCCE farm advisor interviews are estimated at $0.09 per pound for establishment years 3 and 4 and $0.13 per pound for establishment year 5 and throughout the production years for Ventura and Santa Barbara counties. For San Luis Obispo County, because of lower yield, picking costs are estimated at $0.07 per pound for establishment years 3 and 4 and $0.11 per pound for establishment year 5 and throughout the production years. 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 $1.27 of crop value.

CDFA State Organic Program Registration. According to the California Department of Food and Agriculture (CDFA), every person involved in organic production must register with the state organic program. Growers are encouraged to register through their County Agricultural Commissioner's office. First time registrant fee is $75 per orchard ($7.50 per acre for 10 acres

orchard) regardless of expected sales in that year. First time registration is typically done in the third year (the year when harvest begins). Then in the following years, registration fees are based on annual gross sales therefore will increase as trees mature and yield increases. CDFA recommends grower register 30 days prior to harvest season. Therefore, growers' registration of their annual gross sales is based on their expectation of prices and yield for the season. Growers must renew CDFA registration every 12 month from first registration date (CDFA, 2012). An organic fee schedule chart based on gross sales is available at the California Organic Program website: http://www.cdfa.ca.gov/is/docs/New_and_Amend_Organic_Registration.pdf
(Link can be view in the free version of Adobe Reader X program)

Based on our yield assumptions for Ventura and Santa Barbara counties (Table C) registration fee estimations include the following: year 3 is $75 per orchard ($7.50 per acre based on 10 acres orchard); year 4 is $100 per orchard ($10 per acre); year 5 is $175 per orchard ($17.50 per acre); year 6 and beyond is $300 per orchard ($30 per acre).

Based on our yield assumptions for San Luis Obispo County registration fee estimations include the following: year 3 is $75 per orchard ($7.50 per acre based on 10 acres orchard); year 4 is $100 per orchard ($10 per acre); year 5 and 6 is $175 per orchard ($17.50 per acre); and production year is $300 per orchard ($30 per acre).

Organic Certification. According to CDFA, organic growers with gross sales exceeding $5,000 must be certified. There are many organic certification programs in California and fees may be different from each other. In this study, we used the California Certified Organic Farmers (CCOF) certification program and fees. Growers are encouraged to do their own research and pick the certification program that best fits their needs. A list of CDFA approved organic certifiers is available on the state organic program website: http://www.cdfa.ca.gov/is/docs/CertifiersListNew.pdf.

According to the southern region CCOF representative, it may take up to 90 days to complete the application and inspection process. The one time application fee is $275 per orchard ($27.50 per acre based on 10 acres orchard) and the inspection fee is $500 per orchard ($50 per acre based on the 10 acres orchard). Once a grower is certified, there are annual certification contract and renewal fees. Certification renewal fees are based on annual crop value and must be paid by the end of the calendar year in December and no later than January 1.

Certification renewal fees per orchard for Ventura and Santa Barbara counties based on our assumptions of yield and crop values include $200 ($20 per acre for a 10 acres orchard) for establishment year 3; $350 ($35 per acre) for establishment year 4; $525 ($52.50 per acre) for establishment year 5; and $600 per orchard ($60 per acre) for establishment year 6 and production years. Certification renewal fees per orchard for our yield and crop value assumption for San Luis Obispo County include $200 ($20 per acre based on 10 acres orchard) for establishment year 3; $350 ($35 per acre) for establishment year 4; $525 ($52.50 per acre) for establishment year 5 and 6; and $600 ($60 per acre) in production years. The CCOF certification fee schedule is available on the California Certified Organic Farmers website: http://www.ccof.org/fees.php.

USDA - CDFA Cost Share Program. The Cost Share Program is administered by the CDFA. The United States Department of Agriculture (USDA) has provided funds to the CDFA to be distributed to operations that have been certified organic by the USDA accredited certifiers. Growers can apply once per year for reimbursement. Growers can apply by submitting an application with a copy of certification, and copies of organic certification expenses. The Cost Share Program is on a first come first serve basis depending on availability of funding. According to the CDFA, eligible growers will be reimbursed up to 75% of their organic certification costs, not to exceed $750 per year. Information on the Cost Share Program can be viewed at the CDFA Organic Program website: http://www.cdfa.ca.gov/is/i_&_c/organic.html

For this study, we assumed growers apply to the Cost Share Program annually starting in establishment year 2 when organic application and inspection is done. For year 2, cost share reimbursement for Ventura and Santa Barbara counties is $58.13 per acre ($581.25 per orchard). For year 3, reimbursement is $15 per acre ($150 per orchard); year 4 reimbursement is $26.25 per acre ($262.50 per orchard); year 5 reimbursement is $39.38 per acre ($393.75 per orchard); year 6 and beyond reimbursement is $45 per acre ($450 per orchard). Cost share reimbursement for San Luis Obispo County is $58.13 per acre ($581.25 per orchard) for year 2. For year 3, reimbursement is $15 per acre ($150 per orchard). For year 4, reimbursement is $26.25 per acre ($262.50 per orchard). For year, 5 and 6, reimbursement is $39.38 per acre ($393.75 per orchard). For production year, reimbursement is $45 per acre ($450 per orchard).

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. In addition, qualified organic growers may be exempt from the 2.5 cent per pound HAB assessment fee if they apply for exemption annually. 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. Based on grower's interview and discussions with the UCCE farm advisor, organic avocados are considered to receive about $0.20 more than conventional avocados. Using the conventional five year average price of $1.07 (source: The California Avocado Commission); the organic price becomes $1.27 per pound.

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 organic avocado orchard and producing organic 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 15 hours per acre per year (~6,500 miles per year for the 10 acres) and the ATV is used for 7.50 hours per acre per year (~1,250 miles per year for the 10 acres).

Equipment operating cash costs for 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 (10 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. Ventura, Santa Barbara, and San Luis Obispo 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 $55 for a

10 acres orchard ($5.50 per acre in our study). Soil analysis is also conducted in September; it costs $70 for a 10 acres orchard ($7 per acre 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 ($47.70 per acre for 10 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 part of the production year.

NON-CASH OVERHEAD COSTS

Land Rent. Currently very little new plantings are taking place on open land in Ventura and Santa Barbara 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. Orchards in San Luis Obispo County are relatively new; therefore, no published data on land rent or leases for agriculture is available.

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 Ventura and Santa Barbara counties ranged from $25,000 to $50,000 per acre. There is no land value published for avocados in San Luis Obispo County. After some research into agricultural land for sale in San Luis Obispo County, we found the price ranges to be comparable to Ventura and Santa Barbara counties. New and open land for agricultural use in San Luis Obispo County ranges from $40,000 to $50,000 per acre. We used the high end ($50,000) for all counties and estimated the opportunity cost (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 we 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 gross income for years 1 – 6) in Ventura and Santa Barbara counties are $39,552 per acre and $39,773 per acre in San Luis Obispo 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 for organic avocados is $12,222 per acre for Ventura and Santa Barbara counties and $11,579 per acre for San Luis Obispo County. Production costs by type of activity and by type of inputs are presented in tables 3 and 5, respectively, for Ventura and Santa Barbara counties, and in tables 4 and 6, respectively, for San Luis Obispo County.

The production costs breakdown for Ventura and Santa Barbara counties include 30% ($3,732) accounted for by cultural (production) practices (consisting of pruning, weed control, erosion control, pest control, fertilization, and irrigation); 13% ($1,599) by harvesting (picking, hauling, marketing, and organic fees); 1% ($121.71) by interest on operating capital; 12% ($1,384) by cash overhead costs (liability insurance, soil analysis, leaf analysis, office expenses, property taxes, property insurance, and investment repairs) ; and 44% ($5,386) by non-cash overhead costs (annual ownership costs for equipment, buildings, tools, irrigation system, and amortization of accumulated tree establishment). For San Luis Obispo County, the production costs breakdown include 29% ($3,420) accounted for by cultural (production) practices; 11% ($1,261) by harvesting; 1% ($112.57) by interest on operating capital; 13% ($1,386) by cash overhead costs; and 46% ($5,400) by non-cash overhead costs.

PROFITABILITY ANALYSIS

We analyzed profitability of producing avocados in Ventura, Santa Barbara, and San Luis Obispo counties for organic 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 costs. 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 10,500 pounds for Ventura and Santa Barbara counties, the break-even cost is estimated at $1.16 per pound. For San Luis Obispo County, using a yield level of 9,500 pounds, the break-even cost is estimated at $1.22 per pound. Given the average price assumption of $1.27 per pound, the profit margin (returns to management) therefore equals about $0.11 per pound ($1,113 per acre) for Ventura and Santa Barbara counties, and about $0.05 per pound ($486 per acre) for San Luis Obispo County.

Returns above Costs. We realize that many of the avocado growers in Ventura and Santa Barbara 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 Ventura, Santa Barbara, and San Luis Obispo counties and provide investors with up to date investment and profitability benchmarks and to reflect the opportunity cost of producing avocados.

The cost of production and profitability analyses, given our assumption for narrow space planting of 22'x 11' and yield of 10,500 pounds of organic avocados in Ventura and Santa Barbara counties show that the cash cost per pound of production to be $0.65 and the total cost per pound to be $1.16. Given growers comments of the price of organic avocados to be about $0.20 more than the conventional; the price is $1.27 per pound, the gross margin (profit after cash costs) therefore equals about $0.67 per pound ($6,499 per acre) and the net margin (returns to management-profit after all costs except management) equals about $0.11 per pound ($1,113 per acre). For San Luis Obispo County, the gross margin equals about $0.65 per pound ($5,886 per acre) and the net margin equals about $0.05 per pound ($486 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 combinations 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 organic avocados. Production risks are associated with various sources of uncertainty including insect damage, diseases, and severe frost that affect organic production. Frost is the main production risk in Ventura, Santa Barbara, and San Luis Obispo counties. The market and price of organic avocados are also very volatile. They are caused by factors such as increases in supply and or decreases in demand for organic 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 organic production practices, prices, and markets are crucial for those involved in organic avocado production and marketing of the crop.

Comparison between Conventional and Organic Avocado Orchard Establishment and Production Costs in Ventura, Santa Barbara, and San Luis Obispo counties. Our study shows that establishment and production costs are lower in San Luis Obispo County due to lower water and picking costs than Ventura and Santa Barbara counties. However, returns are also lower in San Luis Obispo than Ventura and Santa Barbara counties because of lower yield.

Among production practices, organic orchard establishment costs are higher by about 10% ($4,441 per acre for Ventura and Santa Barbara & $4,597 per acre for San Luis Obispo) than conventional avocado establishment costs. The major part of the differences in the establishment

years is accounted for by fertilization, weed management, pest control methods. During establishment years 1- 6, organic fertilizer costs $2,894 per acre; pest control costs $1,525 per acre; and weed management costs $966 per acre. In comparison, conventional fertilization costs only $423 per acre; pest control costs $1,194 per acre; and weed management costs $502 per acre.

In production years, costs of organic avocados production exceeded that of the conventional production by about $1,300 per acre. The major part of that cost is accounted for by organic fertilization ($1,037 per acre) which costs eight times more than conventional fertilization ($132 per acre). Differences in weed management and pest control are not very much. Weed management costs $84 per acre for organic production in comparison to $71 per acre for conventional production. The cost for pest control is $346 per acre in comparison to $262 per acre for conventional methods.

Profitability estimate of organic avocados in these counties is lower than avocados produced conventionally. Though organic avocados are considered to receive $0.20 more per pound than conventional avocados, organic production shows lower yield than the conventional production. Per information from growers and the local UCCE farm advisor interviews, organic production is estimated to yield ~15% less than the conventional production. Hence, returns to management of organic avocados production are estimated to be $1,113 per acre vs. $2,356 per acre for conventional production in Ventura and Santa Barbara counties. In San Luis Obispo, organic avocado yield is assumed even lower (25%) than the conventional yield, hence our study shows a much smaller profitability of $486 per acre vs. $1,788 per acre for conventional production.

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Table 1. Costs per Acre to Establish an Avocado Orchard in Ventura and Santa Barbara Counties using Organic Production Practices in 2011

Year	1st	2nd	3rd	4th	5th	6th
OPERATING COSTS:						
Preplant:						
Clear Land & Build Road	2,000					
Orchard Layout	210					
TOTAL Preplant COSTS	**2,210**					
Plant:						
Avocado Trees, Wraps, Stakes, Labor (180 trees)	5,856					
Mulch & Labor	700					
TOTAL Plant COSTS	**6,556**					
Replant:						
Replace Avocado Trees & Labor (5% or 9 trees)		273				
TOTAL Replant COSTS		**273**				
Cultural: (materials, labor, fuel, lube, & repair)						
Mulch & Labor			700			
Erosion control	42	42	42	42	42	42
Weed control - whipping (4x/yr. 1-5; 3x/yr.6; 2x/yr.7)	168	168	168	168	168	126
Rodent control for gophers (12x/yr.)	33	33	33			
Rodent control for squirrels (12x/yr.)	20.65	20.65	20.65	20.65	20.65	20.65
Fertilizer - feathermeal & labor (3x/yr.)	81.4	141.8	222.24	327.4	634.6	947.04
Fertilizer - sulfate of potash 0-0-50	90	90	90	90	90	90
Root rot treatment - gypsum & labor	116.4	116.40	116.4	116.4	116.4	116.4
Irrigation & walk lines (60 irrigations yr. 1; 30 irrigations yr. 2 - onward)	465	503	612	720	828	882
Pollination			120	120	120	120
Pest control - spinosad (Entrust), NR415 oil & helicopter rental			199	199	199	199
Pest control - NR415 oil & helicopter rental			127	127	127	127
Orchard pruning				210	252	336
Misc. pickup truck (labor, fuel, lube & repairs)	465	465	465	465	465	465
Misc. ATV (labor, fuel, lube & repairs)	219	219	219	219	219	219
TOTAL Cultural COSTS	**1700**	**1799**	**3133**	**2824**	**3281**	**3690**

Table 1. Costs per Acre to Establish an Avocado Orchard in Ventura and Santa Barbara Counties using Organic Production Practices in 2011, Cont.

Harvesting, Marketing, Organic Fees, & Reimbursement:						
Organic Certification Application & Inspection		77.5				
CDFA Organic Registration fee			7.5	10	17.5	30
Organic Certification renewal fee (based on CCOF rates)			20	35	52.5	60
USDA - CDFA Cost Share Reimbursement		-58.13	-15	-26.25	-39.37	-45
Picking - Yr. 3-4 $0.09/lb.; Yr. 5-7 $0.13/lb.			63	252	728	1092
Hauling - $0.004/lb.			2.8	11.2	22.4	33.6
CAC assessment - $0.011 x production value			9.78	39.12	78.23	117.35
TOTAL Harvesting, Marketing, & Organic Fees COSTS	**0**	**19.38**	**88.08**	**321.07**	**859.26**	**1287.95**
Interest on Operating Capital @ 5.75%	548.45	75.14	26.41	27.35	96.96	115.57
TOTAL OPERATING COSTS/ACRE	**11015**	**2166**	**3248**	**3172**	**4237**	**5093**
CASH OVERHEAD:						
Liability Insurance	47.7	47.7	47.70	47.7	47.7	47.7
Interest on Operating Capital - cash overhead	37.75	37.75	37.75	37.75	37.75	37.75
Leaf Analysis	5.5	5.5	5.5	5.5	5.5	5.5
Soil Analysis	7	7	7	7	7	7
Office Expenses	120	120	120	120	120	120
Property Taxes	540	615	650	689	716	733
Property Insurance	194	252	279	309	330	343
Investment Repairs	81	81	81	81	81	81
Interest on establishment		859	1266	1711	2027	2222
TOTAL CASH OVERHEAD COSTS/ACRE	**1033**	**2024**	**2494**	**3007**	**3373**	**3598**
TOTAL CASH COSTS	**12,047**	**4190**	**5741**	**6179**	**7610**	**8691**
INCOME FROM PRODUCTION	0	0	***889***	***3,556***	***7,112***	***10,668***
NET CASH COSTS FOR THE YEAR	**12,047**	**4190**	**4852**	**2623**	**498**	**-1977**
ACCUMULATED NET CASH COSTS	**12,047**	**16,237**	**21090**	**23713**	**24212**	**22234**
NON-CASH OVERHEAD:						
Land	2,375	2,375	2,375	2,375	2,375	2,375
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)	152.70	152.70	152.70	152.70	152.70	152.70
Equipment	276.42	276.42	276.42	276.42	276.42	276.42
TOTAL NON-CASH OVERHEAD COSTS	**2886**	**2886**	**2886**	**2886**	**2886**	**2886**
TOTAL COSTS/ACRE	**14,933**	**7076**	**7,739**	**5509**	**3385**	**909**
TOTAL ACCUMULATED NET COST	**14,933**	**22,010**	**29,748**	**35258**	**38642**	**39552**

Table 2. Costs per Acre to Establish an Avocado Orchard in San Luis Obispo County using Organic Production Practices in 2011

Year	1st	2nd	3rd	4th	5th	6th
OPERATING COSTS:						
Preplant:						
Clear Land & Build Road	2,000					
Orchard Layout	210					
TOTAL Preplant COSTS	**2,210**					
Plant:						
Avocado Trees, Wraps, Stakes, Labor (180 trees)	5,856					
Mulch & Labor	700					
TOTAL Plant COSTS	**6,556**					
Replant:						
Replace Avocado Trees & Labor (5% or 9 trees)		273				
TOTAL Replant COSTS		**273**				
Cultural: (materials, labor, fuel, lube, & repair)						
Mulch & Labor			700			
Erosion control	42	42	42	42	42	42
Weed control - whipping (4x/yr. 1-5; 3x/yr.6; 2x/yr.7)	168	168	168	168	168	126
Rodent control for gophers (12x/yr.)	33	33	33			
Rodent control for squirrels (12x/yr.)	20.65	20.65	20.65	20.65	20.65	20.65
Fertilizer - feathermeal & labor (3x/yr.)	81.4	141.8	222.24	327.40	634.60	947.04
Fertilizer - sulfate of potash 0-0-50	90	90	90	90	90	90
Root rot treatment - gypsum & labor	116.4	116.40	116.4	116.4	116.4	116.4
Irrigation & walk lines (60 irrigations yr. 1; 30 irrigations yr. 2 - onward)	340	337	403	470	537	570
Pollination			120	120	120	120
Pest control - spinosad (Entrust), NR415 oil & helicopter rental			199	199	199	199
Pest control - NR415 oil & helicopter rental			127	127	127	127
Orchard pruning				210	252	336
Misc. pickup truck (labor, fuel, lube & repairs)	465	465	465	465	465	465
Misc. ATV (labor, fuel, lube & repairs)	219	219	219	219	219	219
TOTAL Cultural COSTS	**1575**	**1632**	**2925**	**2574**	**2990**	**3377**

Table 2. Costs per Acre to Establish an Avocado Orchard in San Luis Obispo County using Organic Production Practices in 2011, Cont.

Harvesting, Marketing, Organic Fees, & Reimbursement:						
Organic Certification Application & Inspection		77.5				
CDFA Organic Registration fee			7.5	10	17.5	17.5
Organic Certification renewal fee (based on CCOF rates)			20	35	52.5	52.5
USDA - CDFA Cost Share Reimbursement		-58.13	-15	-26.25	-39.37	-39.37
Picking - Yr. 3-4 $0.07/lb.; Yr. 5-7 $0.11/lb.			42	175	550	836
Hauling - $0.004/lb.			2.4	10	20	30.4
CAC assessment - $0.011 x production value			8.38	34.92	69.85	106.17
TOTAL Harvesting, Marketing, & Organic Fees COSTS	**0**	**19.38**	**65**	**239**	**670**	**1003**
Interest on Operating Capital @ 5.75%	542.75	66.12	23.59	26.27	90.26	106.97
TOTAL OPERATING COSTS/ACRE	**10884**	**1991**	**3014**	**2839**	**3751**	**4488**
CASH OVERHEAD:						
Liability Insurance	47.7	47.7	47.70	47.7	47.7	47.7
Interest on Operating Capital - cash overhead	37.75	37.75	37.75	37.75	37.75	37.75
Leaf Analysis	5.5	5.5	5.5	5.5	5.5	5.5
Soil Analysis	7	7	7	7	7	7
Office Expenses	120	120	120	120	120	120
Property Taxes	540	614	648	686	714	732
Property Insurance	194	251	278	307	329	343
Investment Repairs	81	81	81	81	81	81
Interest on establishment		851	1247	1685	2003	2212
TOTAL CASH OVERHEAD COSTS/ACRE	**1033**	**2015**	**2473**	**2978**	**3345**	**3586**
TOTAL CASH COSTS	**11,917**	**4006**	**5487**	**5817**	**7095**	**8073**
INCOME FROM PRODUCTION	0	0	***762***	***3,175***	***6,350***	***9,652***
NET CASH COSTS FOR THE YEAR	**11,917**	**4006**	**4725**	**2642**	**745**	**-1579**
ACCUMULATED NET CASH COSTS	**11,917**	**15,923**	**20647**	**23289**	**24034**	**22456**
NON-CASH OVERHEAD:						
Land	2,375	2,375	2,375	2,375	2,375	2,375
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)	152.70	152.70	152.70	152.70	152.70	152.70
Equipment	276.42	276.42	276.42	276.42	276.42	276.42
TOTAL NON-CASH OVERHEAD COSTS	**2886**	**2886**	**2886**	**2886**	**2886**	**2886**
TOTAL COSTS/ACRE	**14,803**	**6892**	**7,611**	**5528**	**3631**	**1308**
TOTAL ACCUMULATED NET COST	**14,803**	**21,695**	**29,306**	**34834**	**38465**	**39773**

Table 3. Costs per Acre to Produce Avocados in Ventura and Santa Barbara Counties using Organic 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: (materials, labor, fuel, lube, & repair)								
Erosion control	3	42	0	0	0	0	42	
Weed control - whipping (2x/yr.)	6	84	0	0	0	0	84	
Rodent control for squirrels (12x/yr.)	1	14	0	0	6.65	0	20.65	
Fertilizer - feathermeal & labor (3x/yr.)	4.56	63.84	0	0	883.2	0	947.04	
Fertilizer - sulfate of potash 0-0-50	0	0	0	0	90	0	90	
Root rot treatment - gypsum & labor	6	84	0	0	32.4	0	116.4	
Irrigation & walk lines (30 irrigations/yr.)	5	70	0	0	812.4	0	882	
Pollination	0	0	0	0	0	120	120	
Pest control - spinosad (Entrust), NR415 oil & helicopter rental	0	0	0	0	111.61	87	199	
Pest control - NR415 oil & helicopter rental	0	0	0	0	0	127	127	
Orchard Pruning	30	420	0	0	0	0	420	
Misc. pickup truck (labor, fuel, lube & repairs)	15	324	86.63	53.99	0	0	465	
Misc. ATV (labor, fuel, lube & repairs)	7.5	162	41.59	15.53	0	0	219	
TOTAL Cultural COSTS	**78.06**	**1263.84**	**128.22**	**69.52**	**1936.26**	**334**	**3732**	
Harvesting, Marketing, Organic Fees, & Reimbursement:								
CDFA Organic Registration fee	0	0	0	0	0	30	30	
Organic Certification renewal fee (based on CCOF rates)	0	0	0	0	0	60	60	
USDA - CDFA Cost Share Reimbursement	0	0	0	0	0	-45	-45	
Picking - $0.13/lb.	0	1365	0	0	0	0	1,365	
Hauling - $0.004/lb.	0	42	0	0	0	0	42	
CAC assessment - $0.011 x production value	0	0	0	0	0	147	146.69	
TOTAL Harvesting, Marketing, & Organic Fees COSTS	**0**	**1407**	**0**	**0**	**0**	**191.69**	**1599**	
Interest on Operating Capital @ 5.75%							121.71	
TOTAL OPERATING COSTS/ACRE	**78.06**	**2670.84**	**128.22**	**69.52**	**1936.26**	**525.69**	**5452**	
CASH OVERHEAD:								
Liability Insurance							47.7	
Interest on Operating Capital - cash overhead							37.75	
Leaf Analysis							5.5	
Soil Analysis							7	
Office Expenses							120	
Property Taxes							738	
Property Insurance							347	
Investment Repairs							81	
TOTAL CASH OVERHEAD COSTS/ACRE							**1,384**	
TOTAL CASH COSTS/ACRE							**6,836**	
NON-CASH OVERHEAD:		**Per producing Acre**		**Annual Cost Capital Recovery**				
Land		50,000		2,375			2,375	
Building		1,000		57.41			57.41	
Tools		400		24.66			24.66	
Irrigation System		2,660		152.70			152.70	
Amortized Establishment Cost		39,552		2,500.06			2,500.06	
Equipment		2,860		276.42			276.42	
TOTAL NON-CASH OVERHEAD COSTS		**96,472**		**5,386**			**5,386**	
TOTAL COSTS/ACRE							**12,222**	

Table 4. Costs per Acre to Produce Avocados in San Luis Obispo County using Organic 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: (materials, labor, fuel, lube, & repair)								
Erosion control	3	42	0	0	0	0	42	
Weed control - whipping (2x/yr.)	6	84	0	0	0	0	84	
Rodent control for squirrels (12x/yr.)	1	14	0	0	6.65	0	20.65	
Fertilizer - feathermeal & labor (3x/yr.)	4.56	63.84	0	0	883.2	0	947.04	
Fertilizer - sulfate of potash 0-0-50	0	0	0	0	90	0	90	
Root rot treatment - gypsum & labor	6	84	0	0	32.4	0	116.4	
Irrigation & walk lines (30 irrigations/yr.)	5	70	0	0	500.1	0	570	
Pollination	0	0	0	0	0	120	120	
Pest control - spinosad (Entrust), NR415 oil & helicopter rental	0	0	0	0	111.61	87	199	
Pest control - NR415 oil & helicopter rental	0	0	0	0	0	127	127	
Orchard Pruning	30	420	0	0	0	0	420	
Misc. pickup truck (labor, fuel, lube & repairs)	15	324	86.63	53.99	0	0	465	
Misc. ATV (labor, fuel, lube & repairs)	7.5	162	41.59	15.53	0	0	219	
TOTAL Cultural COSTS	**78.06**	**1263.84**	**128.22**	**69.52**	**1623.96**	**334**	**3420**	
Harvesting, Marketing, Organic Fees, & Reimbursement:								
CDFA Organic Registration fee	0	0	0	0	0	30	30	
Organic Certification renewal fee (based on CCOF rates)	0	0	0	0	0	60	60	
USDA - CDFA Cost Share Reimbursement	0	0	0	0	0	-45	-45	
Picking - $0.11/lb.	0	1045	0	0	0	0	1,045	
Hauling - $0.004/lb.	0	38	0	0	0	0	38	
CAC assessment - $0.011 x production value	0	0	0	0	0	132.75	132.72	
TOTAL Harvesting, Marketing, & Organic Fees COSTS	**0**	**1083**	**0**	**0**	**0**	**177.75**	**1261**	
Interest on Operating Capital @ 5.75%							112.57	
TOTAL OPERATING COSTS/ACRE	**78.06**	**2346.84**	**128.22**	**69.52**	**1623.96**	**511.75**	**4793**	
CASH OVERHEAD:								
Liability Insurance							47.7	
Interest on Operating Capital - cash overhead							37.75	
Leaf Analysis							5.5	
Soil Analysis							7	
Office Expenses							120	
Property Taxes							739	
Property Insurance							348	
Investment Repairs							81	
TOTAL CASH OVERHEAD COSTS/ACRE							**1,386**	
TOTAL CASH COSTS/ACRE							**6,179**	
NON-CASH OVERHEAD:		**Per producing Acre**		**Annual Cost Capital Recovery**				
Land		50,000		2,375			2,375	
Building		1,000		57.41			57.41	
Tools		400		24.66			24.66	
Irrigation System		2,660		152.70			152.70	
Amortized Establishment Cost		39,773		2,514.03			2,514.03	
Equipment		2,860		276.42			276.42	
TOTAL NON-CASH OVERHEAD COSTS		**96,693**		**5,400**			**5,400**	
TOTAL COSTS/ACRE							**11,579**	

Table 5. Costs and Returns per Acre to Produce Avocados in Ventura and Santa Barbara Counties using Organic Production Practices in 2011

UC COOPERATIVE EXTENSION

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre
GROSS RETURNS				
Organic Avocados	10,500	lb	$1.27	$13,335
TOTAL GROSS RETURNS	**10,500**	**lb**		**$13,335**
OPERATING COSTS				
Custom:				**294**
Beehive	2	unit	60	120
Helicopter rental	2	acre	87	174
Water:				**812.4**
Ventura & Santa Barbara water	30	ac-in	27.08	812.4
Fertilizer:				**1,005.60**
Gypsum	2700	lb	0.012	32.40
Feathermeal	1380	lb	0.64	883.20
Sulfate of Potash	100	lb	0.9	90
Insecticide:				**151.61**
Spinosad	3	oz	33.87	101.61
NR-415 Oil	5	gal	10	50
Harvest:				**1,553.69**
Picking	10500	lb	0.13	1,365
Hauling	10500	lb	0.004	42
CAC Assessment Fee	13335	production value	0.011	146.69
Rodenticide:				**6.65**
Squirrel Bait	0.75	lb	7.23	5.42
Squirrel Trap	1	acre	1	1
Squirrel Bait Station	1	acre	0.23	0.23
Organic Fee:				**45**
CDFA Organic Registration fee	1	acre	30	30
Organic Certification renewal fee	1	acre	60	60
USDA - CDFA Cost Share Reimbursement	1	acre	-45	-45
Labor:				**1,263.84**
Equipment Operator Labor	27	hr	18	486
Manual Labor	50.56	hr	14	707.84
Irrigation Labor	5	hr	14	70
Machinery:				**198**
Fuel-Gas	33.3	gal	3.85	128.22
Fuel-Diesel	0	gal	3.44	0
Lube				19
Machinery Repair				50
Interest on Operating Capital (5.75%)				121.71
TOTAL OPERATING COSTS/ACRE				**5,452**
NET RETURNS ABOVE OPERATING COSTS				**7,883**
CASH OVERHEAD COSTS				
Liability Insurance				47.7
Interest on Operating Capital - cash overhead				37.75
Leaf Analysis				5.5
Soil Analysis				7
Office Expenses				120
Property Taxes				737.66
Property Insurance				346.93
Investment Repairs				81
TOTAL CASH OVERHEAD COSTS/ACRE				**1,384**
TOTAL CASH COSTS/ACRE				**6,836**
NET RETURNS ABOVE CASH COST				**6,499**
NON-CASH OVERHEAD COSTS (Capital Recovery)				
Land				2,375
Building				57.41
Tools				24.66
Irrigation System				152.70
Amortized Establishment Cost				2,500.06
Equipment				276.42
TOTAL NON-CASH OVERHEAD COSTS				**5,386**
TOTAL COST/ACRE				**12,222**
TOTAL COST/ lb				**1.16**
NET RETURNS ABOVE TOTAL COST				**1,113**

Table 6. Costs and Returns per Acre to Produce Avocados in San Luis Obispo County using Organic Production Practices in 2011

UC COOPERATIVE EXTENSION

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre
GROSS RETURNS				
Organic Avocados	9,500	lb	$1.27	$12,065
TOTAL GROSS RETURNS	**9,500**	**lb**		**$12,065**
OPERATING COSTS				
Custom:				**294**
Beehive	2	unit	60	120
Helicopter rental	2	acre	87	174
Water:				**500**
San Luis Obispo water	30	ac-in	16.67	500
Fertilizer:				**1,005.60**
Gypsum	2700	lb	0.012	32.40
Feathermeal	1380	lb	0.64	883.20
Sulfate of Potash	100	lb	0.9	90
Insecticide:				**151.61**
Spinosad	3	oz	33.87	101.61
NR-415 Oil	5	gal	10	50
Harvest:				**1,216**
Picking	9500	lb	0.11	1,045
Hauling	9500	lb	0.004	38
CAC Assessment Fee	12065	production value	0.011	133
Rodenticide:				**6.65**
Squirrel Bait	0.75	lb	7.23	5.42
Squirrel Trap	1	acre	1	1
Squirrel Bait Station	1	acre	0.23	0.23
Organic Fee:				**45**
CDFA Organic Registration fee	1	acre	30	30
Organic Certification renewal fee	1	acre	60	60
USDA - CDFA Cost Share Reimbursement	1	acre	-45	-45
Labor:				**1,263.84**
Equipment Operator Labor	27	hr	18	486
Manual Labor	50.56	hr	14	707.84
Irrigation Labor	5	hr	14	70
Machinery:				**198**
Fuel-Gas	33.3	gal	3.85	128.22
Fuel-Diesel	0	gal	3.44	0
Lube				19
Machinery Repair				50
Interest on Operating Capital (5.75%)				112.57
TOTAL OPERATING COSTS/ACRE				**4,793**
NET RETURNS ABOVE OPERATING COSTS				**7,272**
CASH OVERHEAD COSTS				
Liability Insurance				47.7
Interest on Operating Capital - cash overhead				37.75
Leaf Analysis				5.5
Soil Analysis				7
Office Expenses				120
Property Taxes				738.76
Property Insurance				347.79
Investment Repairs				81
TOTAL CASH OVERHEAD COSTS/ACRE				**1,386**
TOTAL CASH COSTS/ACRE				**6,179**
NET RETURNS ABOVE CASH COST				**5,886**
NON-CASH OVERHEAD COSTS (Capital Recovery)				
Land				2,375
Building				57.41
Tools				24.66
Irrigation System				152.70
Amortized Establishment Cost				**2,514.03**
Equipment				276.42
TOTAL NON-CASH OVERHEAD COSTS				**5,400**
TOTAL COST/ACRE				**11,579**
TOTAL COST/ lb				**1.22**
NET RETURNS ABOVE TOTAL COST				**486**

Table 7. Monthly Cash Costs per Acre to Produce Avocados in Ventura and Santa Barbara Counties using Organic Production Practices in 2011

UC COOPERATIVE EXTENSION													
Beginning 01-11	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**	**TOTAL**
Ending 12-11	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	
Cultural: (materials, labor, fuel, lube, & repair)													
Erosion control			42										42
Weed control - whipping (2x/yr.)		42				42							84
Rodent control for squirrels (12x/yr.)	2.84	1.61	1.61	1.61	1.61	1.61	1.61	1.61	1.63	1.63	1.63	1.63	20.65
Fertilizer - feathermeal & labor (3x/yr.)			315.68		315.68			315.68					947.04
Fertilizer - sulfate of potash 0-0-50			90										90
Root rot treatment - gypsum & labor								116.4					116.4
Irrigation & walk lines (30 irrigations/yr.)				126.14	126.14	126.14	126	126	126	126			882
Pollination					60				60				120
Pest control - spinosad (Entrust), NR415 oil, & helicopter rental			199										199
Pest control - NR415 oil & helicopter rental								127					127
Orchard Pruning	420												420
Misc. pickup truck (labor, fuel, lube & repairs)	39	39	39	39	39	39	39	39	39	39	39	39	465
Misc. ATV (labor, fuel, lube & repairs)	18	18	18	18	18	18	18	18	18	18	18	18	219
TOTAL Cultural COSTS	**479.82**	**100.59**	**704.88**	**184.73**	**560.41**	**226.73**	**184.59**	**743.67**	**244.61**	**184.61**	**58.61**	**58.61**	**3,732**
Harvesting, Marketing, Organic Fees, & Reimbursement:													
CDFA Organic Registration fee				30									30
Organic Certification renewal fee (based on CCOF rates)	60												60
USDA - CDFA Cost Share Reimbursement												-45	-45
Picking - $0.13/lb.					682.5				682.5				1,365
Hauling - $0.004/lb.					21				21				42
CAC assessment - $0.011 x production value					73.35				73.35				146.69
TOTAL Harvesting, Marketing, & Organic Fees COSTS	**60**	**0**	**0**	**30**	**776.85**	**0**	**0**	**0**	**776.85**	**0**	**0**	**-45**	**1599**
Interest on Operating Capital (5.75%)	12.33	2.30	14.04	4.90	33.19	5.18	4.21	14.32	25.38	4.22	1.34	0.31	121.71
TOTAL OPERATING COSTS/ACRE	**552.14**	**102.89**	**718.92**	**219.63**	**1,370.44**	**231.91**	**188.80**	**757.99**	**1,046.83**	**188.82**	**59.95**	**13.92**	**5,452**
CASH OVERHEAD													
Liability Insurance						47.7							47.7
Interest on Operating Capital - cash overhead	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	37.75
Leaf Analysis									5.5				5.5
Soil Analysis									7				7
Office Expenses	10	10	10	10	10	10	10	10	10	10	10	10	120
Property Taxes		369					369						738
Property Insurance		173					173						347
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	**19.91**	**562.21**	**19.91**	**19.91**	**19.91**	**67.61**	**562.21**	**19.91**	**32.41**	**19.91**	**19.91**	**19.91**	**1384**
TOTAL CASH COSTS/ACRE	**572.06**	**665.09**	**738.83**	**239.54**	**1,390.36**	**299.52**	**751.01**	**777.90**	**1,079.24**	**208.74**	**79.86**	**33.83**	**6836**

Table 8. Monthly Cash Costs per Acre to Produce Avocados in San Luis Obispo County using Organic Production Practices in 2011

UC COOPERATIVE EXTENSION													
Beginning 01-11	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**	**TOTAL**
Ending 12-11	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	**11**	
Cultural: (materials, labor, fuel, lube, & repair)													
Erosion control			42										42
Weed control - whipping (2x/yr.)		42				42							84
Rodent control for squirrels (12x/yr.)	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	20.65
Fertilizer - feathermeal & labor (3x/yr.)			315.68		315.68			315.68					947.04
Fertilizer - sulfate of potash 0-0-50			90										90
Root rot treatment - gypsum & labor								116.4					116.4
Irrigation & walk lines (30 irrigations/yr.)				81.44	81.44	81.44	81.44	81.44	81.44	81.44			570
Pollination					60				60				120
Pest control - spinosad (Entrust), NR415 oil, & helicopter rental			199										199
Pest control - NR415 oil & helicopter rental								127					127
Orchard Pruning	420												420
Misc. pickup truck (labor, fuel, lube & repairs)	39	39	39	39	39	39	39	39	39	39	39	39	465
Misc. ATV (labor, fuel, lube & repairs)	18	18	18	18	18	18	18	18	18	18	18	18	219
TOTAL Cultural COSTS	**478.70**	**100.70**	**704.99**	**140.14**	**515.82**	**182.14**	**140.14**	**699.22**	**200.14**	**140.14**	**58.70**	**58.70**	**3,420**
Harvesting, Marketing, Organic Fees, & Reimbursement:													
CDFA Organic Registration fee				30									30
Organic Certification renewal fee (based on CCOF rates)	60												60
USDA - CDFA Cost Share Reimbursement												-45	-45
Picking - $0.11/lb.					522.5				522.5				1,045
Hauling - $0.004/lb.					19				19				38
CAC assessment - $0.011 x production value					66.36				66.36				132.72
TOTAL Harvesting, Marketing, & Organic Fees COSTS	**60**	**0**	**0**	**30**	**607.86**	**0**	**0**	**0**	**607.86**	**0**	**0**	**-45**	**1261**
Interest on Operating Capital (5.75%)	14.10	2.64	16.10	4.45	32.54	4.77	3.67	15.25	23.59	3.67	1.54	0.36	112.57
TOTAL OPERATING COSTS/ACRE	**552.80**	**103.33**	**721.09**	**174.60**	**1,156.22**	**186.91**	**143.81**	**714.48**	**831.59**	**143.81**	**60.24**	**14.06**	**4,793**
CASH OVERHEAD													
Liability Insurance						47.7							47.7
Interest on Operating Capital - cash overhead	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	3.15	37.75
Leaf Analysis									5.5				5.5
Soil Analysis									7				7
Office Expenses	10	10	10	10	10	10	10	10	10	10	10	10	120
Property Taxes		369					369						739
Property Insurance		174					174						348
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	**19.91**	**563.19**	**19.91**	**19.91**	**19.91**	**67.61**	**563.19**	**19.91**	**32.41**	**19.91**	**19.91**	**19.91**	**1386**
TOTAL CASH COSTS/ACRE	**572.71**	**666.52**	**741.00**	**194.51**	**1,176.13**	**254.52**	**707.00**	**734.39**	**864.00**	**163.72**	**80.15**	**33.97**	**6179**

Table 9. Range Analysis: Income and Cost Analyses for Producing Avocados in Ventura and Santa Barbara Counties using Organic Production Practices in 2011

UC COOPERATIVE EXTENSION

COST PER ACRE AND PER POUND AT VARIOUS YIELDS OF PRODUCTION

	YIELD (Lbs/acre)						
	7,400	**8,400**	**9,500**	**10,500**	**11,600**	**12,600**	**13,600**
OPERATING COSTS:							
Cultural	3,732	3,732	3,732	3,732	3,732	3,732	3,732
Harvest	1,126	1,288	1,451	1,599	1,761	1,909	2,057
Interest on operating capital @ 5.75%	110.91	114.62	118.33	121.71	125.43	128.80	132.18
TOTAL OPERATING COSTS/ACRE	**4,968**	**5,134**	**5,301**	**5,452**	**5,619**	**5,770**	**5,921**
Total Operating Costs/Lb	0.67	0.61	0.56	0.52	0.48	0.46	0.44
CASH OVERHEAD COSTS/ACRE	1,384	1,384	1,384	1,384	1,384	1,384	1,384
TOTAL CASH COSTS/ACRE	**6,352**	**6,518**	**6,685**	**6,836**	**7,002**	**7,154**	**7,305**
Total Cash Costs/Lb	0.86	0.78	0.70	0.65	0.60	0.57	0.54
NON-CASH OVERHEAD COSTS/ACRE	5,386	5,386	5,386	5,386	5,386	5,386	5,386
TOTAL COSTS/ACRE	**11,738**	**11,904**	**12,071**	**12,222**	**12,389**	**12,540**	**12,691**
Total Costs/Lb	1.59	1.42	1.27	1.16	1.07	1.00	0.93

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

PRICE($/Lb)	YIELD(Lb/acre)						
Avocados	**7,400**	**8,400**	**9,500**	**10,500**	**11,600**	**12,600**	**13,600**
0.97	2,210	3,014	3,914	4,733	5,633	6,452	7,271
1.07	2,950	3,854	4,864	5,783	6,793	7,712	8,631
1.17	3,690	4,694	5,814	6,833	7,953	8,972	9,991
1.27	4,430	5,534	6,764	7,883	9,113	10,232	11,351
1.37	5,170	6,374	7,714	8,933	10,273	11,492	12,711
1.47	5,910	7,214	8,664	9,983	11,433	12,752	14,071
1.57	6,650	8,054	9,614	11,033	12,593	14,012	15,431

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

PRICE($/Lb)	YIELD(Lb/acre)						
Avocados	**7,400**	**8,400**	**9,500**	**10,500**	**11,600**	**12,600**	**13,600**
0.97	826	1,630	2,530	3,349	4,250	5,068	5,887
1.07	1,566	2,470	3,480	4,399	5,410	6,328	7,247
1.17	2,306	3,310	4,430	5,449	6,570	7,588	8,607
1.27	3,046	4,150	5,380	**6,499**	7,730	8,848	9,967
1.37	3,786	4,990	6,330	7,549	8,890	10,108	11,327
1.47	4,526	5,830	7,280	8,599	10,050	11,368	12,687
1.57	5,266	6,670	8,230	9,649	11,210	12,628	14,047

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

PRICE($/Lb)	YIELD(Lb/acre)						
Avocados	**7,400**	**8,400**	**9,500**	**10,500**	**11,600**	**12,600**	**13,600**
0.97	-4,560	-3,756	-2,856	-2,037	-1,137	-318	501
1.07	-3,820	-2,916	-1,906	-987	23	942	1,861
1.17	-3,080	-2,076	-956	63	1,183	2,202	3,221
1.27	-2,340	-1,236	-6	**1,113**	2,343	3,462	4,581
1.37	-1,600	-396	944	2,163	3,503	4,722	5,941
1.47	-860	444	1,894	3,213	4,663	5,982	7,301
1.57	-120	1,284	2,844	4,263	5,823	7,242	8,661

Table 10. Range Analysis: Income and Cost Analyses for Producing Avocados in San Luis Obispo County using Organic Production Practices in 2011

UC COOPERATIVE EXTENSION

COST PER ACRE AND PER POUND AT VARIOUS YIELDS OF PRODUCTION

	YIELD (Lbs/acre)						
	6,700	**7,600**	**8,600**	**9,500**	**10,500**	**11,400**	**12,400**
OPERATING COSTS:							
Cultural	3,420	3,420	3,420	3,420	3,420	3,420	3,420
Harvest	888	1,018	1,146	1,261	1,389	1,504	1,632
Interest on operating capital @ 5.75%	103.61	106.72	109.80	112.57	115.65	118.42	121.50
TOTAL OPERATING COSTS/ACRE	**4,411**	**4,544**	**4,675**	**4,793**	**4,924**	**5,042**	**5,173**
Total Operating Costs/Lb	0.66	0.60	0.54	0.50	0.47	0.44	0.42
CASH OVERHEAD COSTS/ACRE	1,386	1,386	1,386	1,386	1,386	1,386	1,386
TOTAL CASH COSTS/ACRE	**5,797**	**5,930**	**6,061**	**6,179**	**6,310**	**6,428**	**6,559**
Total Cash Costs/Lb	0.87	0.78	0.70	0.65	0.60	0.56	0.53
NON-CASH OVERHEAD COSTS/ACRE	5,400	5,400	5,400	5,400	5,400	5,400	5,400
TOTAL COSTS/ACRE	**11,197**	**11,330**	**11,461**	**11,579**	**11,710**	**11,828**	**11,959**
Total Costs/Lb	1.67	1.49	1.33	1.2188	1.12	1.04	0.96

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

PRICE($/Lb)	YIELD(Lb/acre)						
Avocados	**6,700**	**7,600**	**8,600**	**9,500**	**10,500**	**11,400**	**12,400**
0.97	2,088	2,828	3,667	4,422	5,261	6,016	6,855
1.07	2,758	3,588	4,527	5,372	6,311	7,156	8,095
1.17	3,428	4,348	5,387	6,322	7,361	8,296	9,335
1.27	4,098	5,108	6,247	7,272	8,411	9,436	10,575
1.37	4,768	5,868	7,107	8,222	9,461	10,576	11,815
1.47	5,438	6,628	7,967	9,172	10,511	11,716	13,055
1.57	6,108	7,388	8,827	10,122	11,561	12,856	14,295

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

PRICE($/Lb)	YIELD(Lb/acre)						
Avocados	**6,700**	**7,600**	**8,600**	**9,500**	**10,500**	**11,400**	**12,400**
0.97	702	1,442	2,281	3,036	3,875	4,630	5,469
1.07	1,372	2,202	3,141	3,986	4,925	5,770	6,709
1.17	2,042	2,962	4,001	4,936	5,975	6,910	7,949
1.27	2,712	3,722	4,861	**5,886**	7,025	8,050	9,189
1.37	3,382	4,482	5,721	6,836	8,075	9,190	10,429
1.47	4,052	5,242	6,581	7,786	9,125	10,330	11,669
1.57	4,722	6,002	7,441	8,736	10,175	11,470	12,909

RETURNS PER ACRE ABOVE TOTAL COSTS AT VARIOUS YIELDS AND PRICE COMBINATION

(RETURN TO MANAGEMENT)

PRICE($/Lb)	YIELD(Lb/acre)						
Avocados	**6,700**	**7,600**	**8,600**	**9,500**	**10,500**	**11,400**	**12,400**
0.97	-4,698	-3,958	-3,119	-2,364	-1,525	-770	69
1.07	-4,028	-3,198	-2,259	-1414	-475	370	1,309
1.17	-3,358	-2,438	-1,399	-464	575	1,510	2,549
1.27	-2,688	-1,678	-539	**486**	1,625	2,650	3,789
1.37	-2,018	-918	321	1,436	2,675	3,790	5,029
1.47	-1348	-158	1,181	2,386	3,725	4,930	6,269
1.57	-678	602	2,041	3,336	4,775	6,070	7,509

Table 11. Hourly Costs for Equipment used in Avocados Production in Ventura, Santa Barbara, and San Luis Obispo Counties in 2011

UC COOPERATIVE EXTENSION

			COSTS PER HOUR						
	Organic Avocados		Total	Cash Overhead				Operating	
Description	Hours Used	Hours Used	Capital Recovery	Insur-ance	Taxes	Lube & Repairs	Fuel	Total Oper.	Total Costs/Hr.
Truck	150	150	14.99	0.76	0.98	3.6	5.78	9.37	26.11
ATV	83	100	5.15	0.22	0.28	1.77	5.04	6.81	12.46

Table 12. Farm Investment for Producing Avocados: Values and Annual Costs based on 10 Acres in Ventura, Santa Barbara, and San Luis Obispo Counties using Organic Production Practices in 2011

UC COOPERATIVE EXTENSION

				ANNUAL EQUIPMENT COSTS			
		Yrs	Salvage	Capital	Insur-		
Description	Price	Life	Value	Recovery	ance	Taxes	Total
Truck	23,600	12	5,900.31	2,249.18	114.31	147.5	2,511.00
ATV	5,000	12	646.36	515.00	21.88	28.23	565.11
TOTAL	**28,600**		**6,546.68**	**2,764.18**	**136.19**	**175.73**	**3,076.11**
60% of new cost*	17,160		3,928.01	1,658.51	81.714	105.438	1,845.67
*Used to reflect a mix of new and used equipment							

Ventura and Santa Barbara Counties

				ANNUAL INVESTMENT COSTS				
		Yrs	Salvage	Capital	Insur-			
Description	Price	Life	Value	Recovery	ance	Taxes	Repairs	Total
INVESTMENT								
Land	500,000	36	500,000	23,750	1,627.50	5,000	0	30,377.50
Building	10,000	36	1,000	574.06	42.63	55	200	871.69
Tools	4,000	30	400	246.55	17.05	22	80.00	365.60
Irrigation System	26,600	36	2,660	1,527.00	113.38	146.30	532	2,318.68
Amortized Establishment Cost	395,520	30	0	25,000.60	1,532.64	1,977.60	0	28,510.84
TOTAL INVESTMENT	**936,120**		**504,060**	**51,098.22**	**3,333.20**	**7,200.90**	**812**	**62,444.32**

San Luis Obispo County

				ANNUAL INVESTMENT COSTS				
		Yrs	Salvage	Capital	Insur-			
Description	Price	Life	Value	Recovery	ance	Taxes	Repairs	Total
INVESTMENT								
Land	500,000	36	500,000	23,750	1,627.50	5,000	0	30,377.50
Building	10,000	36	1,000	574.06	42.63	55	200	871.69
Tools	4,000	30	400	246.55	17.05	22	80.00	365.60
Irrigation System	26,600	36	2,660	1,527.00	113.38	146.30	532	2,318.68
Amortized Establishment Cost	397,730	30	0	25,140.30	1,541.20	1,988.65	0	28,670.15
TOTAL INVESTMENT	**938,330**		**504,060**	**51,237.91**	**3,341.76**	**7,211.95**	**812**	**62,603.62**

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Liability Insurance	10	acre	47.7	477
Interest on Operating Capital	10	acre	37.75	377.5
Leaf Analysis	10	acre	5.5	55
Soil Analysis	10	acre	7	70
Office Expenses	10	acre	120	1,200

Table 13. Operations with Equipment for Avocados Production in Ventura and Santa Barbara Counties using Organic Production Practices in 2011

UC COOPERATIVE EXTENSION

Operation	Operation Month	Tractor	Labor Implement	Labor Type	Labor Hour	Material	Rate/Acre/ App	Unit
Erosion Control	Mar			Manual Labor	3			
Weed Control Whipping	Feb			Manual Labor	3			
Weed Control Whipping	June			Manual Labor	3			
Squirrel Control	Jan			Manual Labor	0.08	Squirrel Bait	0.0625	lb
						Squirrel Trap	1	acre
						Squirrel Bait Station	1	acre
Squirrel Control	Feb			Manual Labor	0.08	Squirrel Bait	0.0625	lb
Squirrel Control	Mar			Manual Labor	0.08	Squirrel Bait	0.0625	lb
Squirrel Control	Apr			Manual Labor	0.08	Squirrel Bait	0.0625	lb
Squirrel Control	May			Manual Labor	0.08	Squirrel Bait	0.0625	lb
Squirrel Control	June			Manual Labor	0.08	Squirrel Bait	0.0625	lb
Squirrel Control	July			Manual Labor	0.08	Squirrel Bait	0.0625	lb
Squirrel Control	Aug			Manual Labor	0.08	Squirrel Bait	0.0625	lb
Squirrel Control	Sept			Manual Labor	0.08	Squirrel Bait	0.0625	lb
Squirrel Control	Oct			Manual Labor	0.08	Squirrel Bait	0.0625	lb
Squirrel Control	Nov			Manual Labor	0.08	Squirrel Bait	0.0625	lb
Squirrel Control	Dec			Manual Labor	0.08	Squirrel Bait	0.0625	lb
Root Rot Treatment	Aug			Manual Labor	6	Gypsum	2,700	lb
Irrigate & Walk Lines	Apr			Irrigation Labor	0.72	Water	4.29	ac-in
Irrigate & Walk Lines	May			Irrigation Labor	0.72	Water	4.29	ac-in
Irrigate & Walk Lines	June			Irrigation Labor	0.72	Water	4.29	ac-in
Irrigate & Walk Lines	July			Irrigation Labor	0.71	Water	4.29	ac-in
Irrigate & Walk Lines	Aug			Irrigation Labor	0.71	Water	4.29	ac-in
Irrigate & Walk Lines	Sept			Irrigation Labor	0.71	Water	4.29	ac-in
Irrigate & Walk Lines	Oct			Irrigation Labor	0.71	Water	4.29	ac-in
Feathermeal	Mar			Manual Labor	1.52	Feathermeal 12-0-0	460	lb
Feathermeal	May			Manual Labor	1.52	Feathermeal 12-0-0	460	lb
Feathermeal	Aug			Manual Labor	1.52	Feathermeal 12-0-0	460	lb
Pollination	May&Sept					Beehive	2	unit
Pest Control - Helicopter rental	Mar					Helicopter rental	1	acre
Pest Control - Spinosad						Spinosad (entrust)	3	oz
Pest Control - NR415 Oil						NR-415 Oil	1	gal
Pest Control - Helicopter rental	Aug					Helicopter rental	1	acre
Pest Control - NR415 Oil						NR-415 Oil	4	gal
Fertilizer - Sulfate of Potash	Mar					Sulfate of Potash 0-0-50	100	lb
Orchard Pruning	Jan			Manual Labor	30			
Misc. Pickup truck	Jan		Truck	Equip. Operator Labor	1.5			
Misc. Pickup truck	Feb		Truck	Equip. Operator Labor	1.5			
Misc. Pickup truck	Mar		Truck	Equip. Operator Labor	1.5			
Misc. Pickup truck	April		Truck	Equip. Operator Labor	1.5			
Misc. Pickup truck	May		Truck	Equip. Operator Labor	1.5			
Misc. Pickup truck	June		Truck	Equip. Operator Labor	1.5			
Misc. Pickup truck	July		Truck	Equip. Operator Labor	1.5			
Misc. Pickup truck	Aug		Truck	Equip. Operator Labor	1.5			
Misc. Pickup truck	Sept		Truck	Equip. Operator Labor	1.5			
Misc. Pickup truck	Oct		Truck	Equip. Operator Labor	1.5			
Misc. Pickup truck	Nov		Truck	Equip. Operator Labor	1.5			
Misc. Pickup truck	Dec		Truck	Equip. Operator Labor	1.5			
Misc. ATV	Jan		ATV	Equip. Operator Labor	0.75			
Misc. ATV	Feb		ATV	Equip. Operator Labor	0.75			
Misc. ATV	Mar		ATV	Equip. Operator Labor	0.75			
Misc. ATV	April		ATV	Equip. Operator Labor	0.75			
Misc. ATV	May		ATV	Equip. Operator Labor	0.75			
Misc. ATV	June		ATV	Equip. Operator Labor	0.75			
Misc. ATV	July		ATV	Equip. Operator Labor	0.75			
Misc. ATV	Aug		ATV	Equip. Operator Labor	0.75			
Misc. ATV	Sept		ATV	Equip. Operator Labor	0.75			
Misc. ATV	Oct		ATV	Equip. Operator Labor	0.75			
Misc. ATV	Nov		ATV	Equip. Operator Labor	0.75			
Misc. ATV	Dec		ATV	Equip. Operator Labor	0.75			
CDFA Organic Registration Fee	Apr					Organic Registration fee	$30	acre
Organic Certification renewal fee	Jan					Organic Certification fee	$60	acre
USDA - CDFA Cost Share Reimbursement	Dec					Cost Share Reimbursement	-$45	acre
Picking	May					Picking - $0.13/lb.	5,250	lb
Picking	Sept					Picking - $0.13/lb.	5,250	lb
Hauling	May					Hauling - $0.004/lb.	5,250	lb
Hauling	Sept					Hauling - $0.004/lb.	5,250	lb
CAC Assessment Fee	May					CAC - $0.011	$6,667.50	production value
CAC Assessment Fee	Sept					CAC - $0.011	$6,667.50	production value

Table 14. Operations with Equipment for Avocados Production in San Luis Obispo County using Organic Production Practices in 2011

UC COOPERATIVE EXTENSION

Operation	Operation Month	Tractor	Labor Implement	Labor Type	Labor Hour	Material	Rate/Acre/ App	Unit
Erosion Control	Mar			Manual Labor	3			
Weed Control Whipping	Feb			Manual Labor	3			
Weed Control Whipping	June			Manual Labor	3			
Squirrel Control	Jan			Manual Labor	0.08	Squirrel Bait	0.06	lb
						Squirrel Trap	1	acre
						Squirrel Bait Station	1	acre
Squirrel Control	Feb			Manual Labor	0.08	Squirrel Bait	0.0625	lb
Squirrel Control	Mar			Manual Labor	0.08	Squirrel Bait	0.0625	lb
Squirrel Control	Apr			Manual Labor	0.08	Squirrel Bait	0.0625	lb
Squirrel Control	May			Manual Labor	0.08	Squirrel Bait	0.0625	lb
Squirrel Control	June			Manual Labor	0.08	Squirrel Bait	0.0625	lb
Squirrel Control	July			Manual Labor	0.08	Squirrel Bait	0.0625	lb
Squirrel Control	Aug			Manual Labor	0.08	Squirrel Bait	0.0625	lb
Squirrel Control	Sept			Manual Labor	0.08	Squirrel Bait	0.0625	lb
Squirrel Control	Oct			Manual Labor	0.08	Squirrel Bait	0.0625	lb
Squirrel Control	Nov			Manual Labor	0.08	Squirrel Bait	0.0625	lb
Squirrel Control	Dec			Manual Labor	0.08	Squirrel Bait	0.0625	lb
Root Rot Treatment	Aug			Manual Labor	6	Gypsum	2,700	lb
Irrigate & Walk Lines	Apr			Irrigation Labor	0.72	Water	4.29	ac-in
Irrigate & Walk Lines	May			Irrigation Labor	0.72	Water	4.29	ac-in
Irrigate & Walk Lines	June			Irrigation Labor	0.72	Water	4.29	ac-in
Irrigate & Walk Lines	July			Irrigation Labor	0.71	Water	4.29	ac-in
Irrigate & Walk Lines	Aug			Irrigation Labor	0.71	Water	4.29	ac-in
Irrigate & Walk Lines	Sept			Irrigation Labor	0.71	Water	4.29	ac-in
Irrigate & Walk Lines	Oct			Irrigation Labor	0.71	Water	4.29	ac-in
Feathermeal	Mar			Manual Labor	1.52	Feathermeal 12-0-0	460	lb
Feathermeal	May			Manual Labor	1.52	Feathermeal 12-0-0	460	lb
Feathermeal	Aug			Manual Labor	1.52	Feathermeal 12-0-0	460	lb
Pollination	May&Sept					Beehive	2	unit
Pest Control - Helicopter rental	Mar					Helicopter rental	1	acre
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Misc. Pickup truck	Mar		Truck	Equip. Operator Labor	1.5			
Misc. Pickup truck	April		Truck	Equip. Operator Labor	1.5			
Misc. Pickup truck	May		Truck	Equip. Operator Labor	1.5			
Misc. Pickup truck	June		Truck	Equip. Operator Labor	1.5			
Misc. Pickup truck	July		Truck	Equip. Operator Labor	1.5			
Misc. Pickup truck	Aug		Truck	Equip. Operator Labor	1.5			
Misc. Pickup truck	Sept		Truck	Equip. Operator Labor	1.5			
Misc. Pickup truck	Oct		Truck	Equip. Operator Labor	1.5			
Misc. Pickup truck	Nov		Truck	Equip. Operator Labor	1.5			
Misc. Pickup truck	Dec		Truck	Equip. Operator Labor	1.5			
Misc. ATV	Jan		ATV	Equip. Operator Labor	0.75			
Misc. ATV	Feb		ATV	Equip. Operator Labor	0.75			
Misc. ATV	Mar		ATV	Equip. Operator Labor	0.75			
Misc. ATV	April		ATV	Equip. Operator Labor	0.75			
Misc. ATV	May		ATV	Equip. Operator Labor	0.75			
Misc. ATV	June		ATV	Equip. Operator Labor	0.75			
Misc. ATV	July		ATV	Equip. Operator Labor	0.75			
Misc. ATV	Aug		ATV	Equip. Operator Labor	0.75			
Misc. ATV	Sept		ATV	Equip. Operator Labor	0.75			
Misc. ATV	Oct		ATV	Equip. Operator Labor	0.75			
Misc. ATV	Nov		ATV	Equip. Operator Labor	0.75			
Misc. ATV	Dec		ATV	Equip. Operator Labor	0.75			
CDFA Organic Registration Fee	Apr					Organic Registration fee	$30	acre
Organic Certification renewal fee	Jan					Organic Certification fee	$60	acre
USDA - CDFA Cost Share Reimbursement	Dec					Cost Share Reimbursement	-$45	acre
Picking	May					Picking - $0.11/lb.	4,750	lb
Picking	Sept					Picking - $0.11/lb.	4,750	lb
Hauling	May					Hauling - $0.004/lb.	4,750	lb
Hauling	Sept					Hauling - $0.004/lb.	4,750	lb
CAC Assessment Fee	May					CAC - $0.011	$6,032.50	production value
CAC Assessment Fee	Sept					CAC - $0.011	$6,032.50	production value

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