
UNIVERSITY OF CALIFORNIA COOPERATIVE EXTENSION

2006

SAMPLE COSTS TO ESTABLISH
AN ORCHARD AND PRODUCE

ALMONDS



SAN JOAQUIN VALLEY NORTH
MICRO SPRINKLER IRRIGATION

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San Joaquin Valley North - 2006

Micro Sprinkler Irrigation

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INTRODUCTION

Sample costs to establish an almond orchard and produce almonds under micro sprinkler irrigation in the Northern San Joaquin Valley are presented in this study. This study is intended as a guide only, and can be used in making production decisions, determining potential returns, preparing budgets and evaluating production loans. Practices described are based on production practices considered typical for the crop and area, but will not apply to every situation. Sample costs for labor, materials, equipment and custom services are based on current figures. A blank column, “Your Costs”, in Tables 3 and 4 is provided to enter your costs.

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

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

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ASSUMPTIONS

The assumptions refer to Tables 1 to 9 and pertain to sample costs to establish an orchard and produce almonds under micro sprinkler irrigation in the northern San Joaquin Valley. The cultural practices described represent production operations and materials considered typical for a well managed farm in the region. Costs, materials, and practices in this study will not apply to all farms. Timing of and types of cultural practices will vary among growers within the region and from season to season due to variables such as weather, soil, and insect and disease pressure. The study is intended as a guide only. **The use of trade names and cultural practices in this report does not constitute an endorsement or recommendation by the University of California nor is any criticism implied by omission of other similar products or cultural practices.**

Land. The hypothetical farm consists of 100 contiguous acres farmed by the owner. Almonds are being established on 40 acres. A mature almond orchard covers 55 acres; roads, irrigation systems and farmstead occupy the remaining five acres.

Establishment Operating Costs (Tables 1 – 2)

Trees. No specific almond variety is planted in this study, but cultural practices are based on mid-season varieties. Almond orchards will include two or more varieties in which pollen shedding and bloom periods overlap to insure good pollination. Cultivars that might be planted in this region include: A) Early blooming — Sonora; B) Mid-blooming — Aldrich, Nonpareil, Carmel, Monterey, Price, and Fritz; C) Late blooming — Mission, Padre, Livingston, and Butte. Planting densities may range from 75 to 180 trees per acre. In this study, 110 trees per acre are planted on an 18-foot X 22-foot spacing (tree x row). The life of the orchard at the time of planting is estimated to be 25 years.

Site Preparation. This 40-acre orchard is established on land previously planted to an orchard. The land is assumed to be well drained and either a class I or II soil.

Orchard Removal. In this study the trees are pushed over and then chipped. The custom operator charges \$250 per acre, plus keeps and sells the wood. The grower then cleans up the orchard for land preparation. To reduce the incidence of diseases and nematodes, the ground should be fallowed for one year after removal.

Land Preparation. The ground is cross-ripped to a six-foot depth to break up hardpan and pull up remaining tree roots, disked twice, and fumigated in the fall, then left unattended over the winter. A custom operator fumigates the tree row area (11 foot strip) with Telone. Fumigation costs also include the grower disking and rolling in the tree row behind the custom fumigator. Prior to planting in January, berms for the tree rows are made. Fall operations that prepare the orchard for planting are done the year prior to planting, but costs are shown in the first year.

Planting, Training, and Pruning. Planting the orchard starts by surveying and marking tree sites. In January, the trees are planted, headed, trimmed, painted, and a tree wrap placed around the trunk. The tree wrap protects against above ground rodents, herbicide sprays, and sunburn. Contract labor companies who specialize in orchard planting do the planting operation. In the second year, two trees per acre are replanted. The replant sites are backhoed, fumigated, and replanted by a custom operator. Training, which includes suckering and light pruning for shaping is done during February or March of the first four years. In March of the first year, the trees are suckered. The young trees are pruned late to avoid bacterial canker. In the following years, pruning is done in November or December.

Fertilization. Beginning in the second year, leaf samples (1 per 20 acres) are taken in July for nutrient analysis. Fertilizers should be applied according to the analysis results. Fertilizer rates in this study are typical nutrient requirements, but do not take into account soil and water nitrogen. In the first year, equally split applications of N are made one-third in the spring (March or April), one third in early summer (June) and one-third in late summer (August). The ammonia sulfate fertilizer (21-0-0) is broadcast by hand near the base of the tree. Beginning in the second year, N as UN-32 is applied monthly from April to August through the irrigation system. Potassium sulfate (0-0-50) is banded along the tree row in the fall. In years one and two, zinc is applied with the rust spray in late March and with the shothole/scab spray in the following years. In September of the second and subsequent years, Solubor (boron) is sprayed along the tree row on the soil surface. Beginning in the third year, hull samples for boron analysis (1 per 40 acres) are taken, immediately prior to or at harvest. Many orchards on the eastside of the northern San Joaquin Valley are boron deficient and additional boron may be required. Annual rates of actual N, K, and B used in this study are shown in Table A. For both the leaf and hull samples, the grower uses an ATV to collect the samples. For the 40 acres, the estimated time is one hour to collect the samples and one hour to prepare and ship the samples.

Table A. Establishment Years
Applied Actual Nitrogen (N),
Potash (K₂O), Boron (B)

Year	lb/acre		
	N	K ₂ O	B
1	20	00	0 (00)
2	40	40	(080) 2 (10)
3	80	80	(160) 2 (10)
4	120	120	(240) 2 (10)
5	160	160	(320) 2 (10)
6+	200	200	(400) 2 (10)

Parenthesis = actual amount of material applied (0-0-50) and (Solubor)

Irrigation and Frost Protection. Water is pumped from a well and passes through an infiltration system into the micro-sprinklers. Water is applied to the orchard approximately twice a week. Water is applied from mid March through mid October. Frost protection begins in the fourth year and uses two acre-inches annually, applied in February and early March in this study. Irrigation labor is assumed to be 0.09 hours per acre per irrigation and water costs (pumping costs) \$56.04 per acre or \$4.67 per acre inch. Table B shows the applied water for each year in this study. Applied water values are substantially greater than the actual tree water requirement due to application inefficiency. Application efficiencies of 90% are used for all years and reflect the differences in evaporative loss due to canopy development. Effective rainfall has not been considered in this study because it is too variable.

Table B. Applied Water per Year

Year	Acre-inch
1	11
2	21
3	32
4+	42

Pollination. Bee hives are placed in the orchard in February prior to bloom by a beekeeper. One hive per acre is set out in the third year and two hives per acre thereafter.

Winter Sanitation. Winter sanitation to remove the mummy nuts begins in December of the fourth year. The mummies are shaken from the trees, blown into the middles and shredded

Pest Management. The pesticides and rates mentioned in this cost study as well as other materials available are listed in *UC Integrated Pest Management Guidelines, Almonds*. Pesticides mentioned in the study are commonly used, but are not recommendations. Adjuvants or surfactants are recommended with many pesticides but are not included as a cost in this study.

Weeds. In the first year, Gramoxone and Prowl are applied to the tree row (strip spray) in February soon after planting. Also, the row middles are disked, floated and then mowed four times during the year. Spot sprays are usually applied as needed; in this study, Gramoxone is applied as a spot spray in the tree row during June. In the second year, the row middles are mowed seven times, once per month from March through September and six times thereafter, March through August. Roundup is applied as a spot spray, once (April) during the growing season to the tree row in the second year, but is usually applied as needed. Prowl and

Roundup are applied to the tree row during the dormant season (December). Beginning in the third year, the dormant strip spray (Goal, Surflan and Roundup) is applied to the tree row in the fall, or winter (November). A preharvest spray (Roundup) is applied to the orchard floor starting in the third year to clean up the row middles prior to harvest.

Insects. In May of the first and following years, mites are controlled with an AgriMek application. Beginning in July of the third year, ant bait (Clinch) is sprinkled on the berms for ant control. Navel orange worms (NOW) are treated beginning in the third year in July (hull split spray) with Intrepid.

Diseases. Rust control is done in the first and second year with an application of Abound (zinc included with spray). In the third and following years, brown rot is treated in February (60 to 80% bloom) with Rovral and oil; shot hole and scab are treated in March (petal fall or afterwards) with Ziram (zinc included with spray). Sprays are usually applied with a handgun sprayer during the first two years and with an air blast sprayer, thereafter. Materials are applied at reduced volumes (25, 50, 75%) during the first three years, because of the small tree size.

Vertebrates. Gophers can cause major losses to trees. Gophers are managed with the use of poison bait applied in the spring by a mechanical bait applicator. Ground squirrels are managed by late winter use of anti-coagulant bait in aboveground bait stations.

Harvest. Harvest starts in the third year using contract labor for hand harvest (poling). The nuts are moved to the centers by hand raking labor furnished by the grower. Mechanical harvesting and pickup by a custom operator begins in the fourth year.

Year	Kernel Pounds
3	300
4	800
5	1,600
6	1,800
7+	2,000

Yields. Almonds begin bearing an economic crop in the third year after planting. Typical annual yields for almonds are measured in meat (kernel) pounds per acre and are shown in Table C.

Production Operating Costs (Tables 3-9)

Winter Sanitation. Winter (December) sanitation destroys over wintering sites for navel orangeworm. The mummy nuts are shaken from the trees, dropped to the orchard floor, blown into the row middles and shredded with a flail mower. Winter sanitation operations except for the shredding are custom hired. Hand poling may be needed in low rainfall years.

Pruning. Hand pruning is done in November or December in this study, but can be done anytime from harvest through the dormant period. Prunings are stacked in the row middles and shredded by a custom operator.

Tree Replacement. One or more trees per acre may die each year and are replaced in late winter. Costs in this study are basic costs that will vary with each orchard and type of tree loss. Tree replacement is included in investment repairs under Cash Overhead.

Irrigation/Frost Protection. Irrigation costs include pumping (water) and labor costs. The water is pumped from a well and passes through an infiltration system and fed into a micro-sprinkler system. Forty-one acre-inches of water are applied to the orchard based on 90% application efficiency from March to October. Applied water values are greater than the actual tree water requirement due to application inefficiency. No

assumption is made about effective rainfall. An additional two acre inches are applied in February and/or March for frost protection. Water cost or pumping costs are \$4.67 per acre inch based on current PG&E agricultural rates. Rates will vary depending upon pump and well specifications and rate program selected. Irrigation labor is 0.09 hours per acre per irrigation.

Pollination. Two hives (5+ frames/hive) per acre are contracted for pollination and set in the orchard by the beekeeper prior to bloom (February).

Fertilization. Nitrogen (N) at 200 pounds per acre per season as UN32 is applied monthly March through September through the irrigation system. Potassium sulfate is banded in the fall (October) along the tree row at 400 pounds of material or 200 pounds of K₂O per acre. Boron at two pounds per acre or 10 pounds of Solubor is sprayed on the soil surface in September. Neutral zinc at five pounds per acre is foliar applied with an insecticide or fungicide spray at pink bud in March.

Sampling. Tree nutrient status is determined by leaf and hull analysis. Leaf samples at one per 20 acres are taken in July. A hull sample at one per 40 acres is taken from the windrow at harvest. The grower uses an ATV to collect the samples which is assumed to take one hour per 40 acres (0.025 hrs/acre) each time. In addition another hour is required to prepare and ship the samples to a commercial lab for analysis.

Pest Management. The pesticides and rates mentioned in this cost study are listed in *UC Integrated Pest Management Guidelines, Almonds*. For more information on other pesticides available, pest identification, monitoring, and management visit the UC IPM website at www.ipm.ucdavis.edu. Cultural practices are discussed in the publications *Integrated Pest Management for Almonds* and *Almond Production Manual*. For information and pesticide use permits, contact the local county agricultural commissioner's office. Adjuvants or surfactants may be recommended for use with some pesticides, but are not included in this study. Pesticide costs vary by location and grower volume. Pesticide costs in this study are taken from a single dealer and shown as full retail.

Pest Control Adviser (PCA). Written recommendations are required for many pesticides and are made by licensed pest control advisers. In addition the PCA can monitor the field for agronomic problems including pests and nutrition. Growers may hire private PCAs or receive the service as part of a service agreement with an agricultural chemical and fertilizer company. No costs are shown for a PCA in this study.

Weeds. A dormant strip spray is applied in November or December using pre-emergent and contact herbicides (Goal, Roundup, Surflan) to control weeds in the tree rows. Row middles are mowed six times, once per month March through August. A preharvest spray (Roundup) is applied in August to prepare the orchard floor for harvest.

Insect and Mite. Mites are sprayed with AgriMek in May. Clinch is applied on the berms in July for ant control. At the beginning of hull split in July, Intrepid is applied to control navel orange worm (NOW). NOW is also managed by early harvest and winter sanitation. Check for San Jose scale; in some year's dormant oil applications may be necessary, also if twig borers are present additional sprays may be needed.

Disease. Brown rot is controlled at 60 to 80% bloom in February with Rovral and Oil. Shot hole and scab treatments with Ziram, are made in March at petal fall or afterwards.

Vertebrate Pest. Gophers are managed with the use of poison bait applied in the spring using a mechanical applicator. Ground squirrels are managed by late winter fumigation and/or the use of anti-coagulant baits on above ground bait stations during the growing season when rodents accept grain.

Harvest. A custom operator mechanically harvests the almond crop. The grower furnishes labor for hand raking to move nuts missed by the sweeper into the windrows. Harvest begins in August with the early maturing varieties and continues into October for late maturing varieties. In this study, harvest is in September. An inertia trunk shaker is the most common shaker in almonds. The shaker head attaches to the tree trunk to shake the nuts from the tree. The nuts fall to the ground and in a separate operation are blown from around the tree and swept into windrows to dry. A pickup machine gathers the nuts from the windrow and loads them into a cart or bankout wagon. In this study the nuts are elevated or dumped into bottom dump trailers with extended sides for delivery to the huller.

Yields and Returns. Typical annual yields for almonds are measured in meat pounds per acre and are shown in Table C. An estimated price of a \$2.00 per pound of almonds is used in this study to determine potential profits/losses. Returns will vary during the year, depending upon the market. The yields and prices used in this cost study are estimated based on 2003 to 2005 USDA California grower returns.

Assessment. The Almond Board of California (ABC) assesses all almonds commercially grown in the state to pay for almond promotions and research. The mandatory assessment is paid by processors and is not reflected in grower costs.

Pickup/ATV. The study assumes business use mileage of 4,000 miles per year for the pickup. The ATV is used for spot spraying, baiting ants and gophers and is included in those costs. Additional ATV use for checking the orchard, diseases and irrigation system is shown as a line item. The business use is estimated and not taken from any specific data.

Labor, Equipment, and Interest

Labor. Hourly wages for workers are \$10.50 for machine operators and \$6.75 per hour non-machine labor. Adding 38% for the employer's share of federal and state payroll taxes, workers compensation insurance, for nut crops (0045) and other possible benefits gives the labor rates shown of \$14.49 and \$9.32 per hour for machine labor and non-machine labor, respectively. Workers' compensation costs will vary among growers, but for this study the cost is based upon the average industry final rate as of January 1, 2005 (California Department of Insurance). Labor for operations involving machinery are 20% higher than the operation time given in Table 3 to account for the extra labor involved in equipment set up, moving, maintenance, work breaks, and field repair.

Equipment Operating Costs. Repair costs are based on purchase price, annual hours of use, total hours of life, and repair coefficients formulated by American Society of Agricultural Engineers (ASAE). Fuel and lubrication costs are also determined by ASAE equations based on maximum power takeoff (PTO) horsepower, and fuel type. Prices for on-farm delivery of diesel and gasoline are \$2.00 and \$2.55 per gallon, respectively. The cost includes a 2% local sales tax on diesel fuel and 8% sales tax on gasoline. Gasoline also includes federal and state excise tax, which are refundable for on-farm use when filing your income tax. The fuel, lube, and repair cost per acre for each operation in Table 3 is determined by multiplying the total hourly operating cost in Table 8 for each piece of equipment used for the selected operation by the hours per acre. Tractor time is 10% higher than implement time for a given operation to account for setup, travel and down time.

Interest on Operating Capital. Interest on operating capital is based on cash operating costs and is calculated monthly until harvest at a nominal rate of 9.25% per year. A nominal interest rate is the typical market cost of borrowed funds. The interest cost of post harvest operations is discounted back to the last

harvest month using a negative interest charge. The rate will vary depending upon various factors, but the rate in this study is considered a typical lending rate by a farm lending agency as of January 2006.

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

Cash Overhead Costs

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

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

Insurance. Insurance for farm investments varies depending on the assets included and the amount of coverage. Property insurance provides coverage for property loss and is charged at 0.70% of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs \$529 for the entire farm.

Office Expense. Office and business expenses are estimated at \$50 per acre. These expenses include office supplies, telephones, bookkeeping, accounting, legal fees, shop and office utilities, and miscellaneous administrative charges. Office expenses are estimated and not taken from any collected data.

Regulatory Costs. Various environmental fees are collected by the county and state. The fees will vary by county. For example the Air Resources Board (state agency) charges \$100 per plan to deal with air pollution and the Ag Waiver Fee (county agency) cost \$2.00 per acre. The grower must also provide safety training, safety equipment, and maintain training records. For this study, a cost of \$5.26 per producing acre or \$500 for the farm is assumed.

Sanitation Services. Sanitation services provide one portable toilet and cost the farm \$560 annually. The cost includes one single toilet unit with washbasin, delivery and 4 months of weekly service.

Managers Salary. No salary is shown. The farm is owned and operated by the grower, therefore returns above cost are assumed to go to management (grower).

Investment Repairs. Annual maintenance is calculated as two percent of the purchase price, except for tree replacement in the orchard. The average tree replacement cost over the life of the orchard is assumed to be 0.10% of the establishment cost or \$170 (\$4.25 per acre) per year.

Non-Cash Overhead Costs

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

Capital Recovery Costs. Capital recovery cost is the annual depreciation and interest costs for a capital investment. It is the amount of money required each year to recover the difference between the purchase price

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

Salvage Value. Salvage value is an estimate of the remaining value of an investment at the end of its useful life. For farm machinery (tractors and implements) the remaining value is a percentage of the new cost of the investment (Boehlje and Eidman). The percent remaining value is calculated from equations developed by the American Society of Agricultural Engineers (ASAE) based on equipment type and years of life. The life in years is estimated by dividing the wear out life, as given by ASAE by the annual hours of use in this operation. For other investments including irrigation systems, buildings, and miscellaneous equipment, the value at the end of its useful life is zero. The salvage value for land is the purchase price because land does not depreciate. The purchase price and salvage value for equipment and investments are shown in Table 7.

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

Interest Rate. The interest rate of 6.25% is used to calculate capital recovery. The rate will vary depending upon size of loan and other lending agency conditions, but is a suggested rate by a farm lending agency in January 2006.

Establishment Cost. Costs to establish the orchard are used to determine capital recovery expenses, depreciation, and interest on investment for the production years. Establishment cost is the sum of the costs for land preparation, planting, trees, cash overhead and production expenses for growing the trees through the first year that almonds are harvested minus any returns from production. The Total Accumulated Net Cash Cost on Table 1, in the third year represents the establishment cost. For this study the cost is \$4,391 per acre or \$175,640 for the 40-acre orchard. The establishment cost is spread over the remaining 22 years of the 25 years the orchard is in production. Establishment costs in this study are based on typical basic operations, but can vary considerably, depending upon terrain, soil type, local regulations, and other factors.

Sprinkler Irrigation System. The sprinkler system consists of micro-sprinklers installed on the 40 acres in the tree row and includes a filtration/injection system located near the pumping plant.

Irrigation Pumping System. A 200 foot deep well with a pumping level at 75-feet is drilled on the site and a new 25 horsepower pump installed to irrigate the 40 acres.

Land. Bare land values range from \$3,000 to \$15,000 per acre depending upon water source (well, district or surface water). Land with available surface water ranges from \$5,000 to \$15,000 per acre. Land in this study is valued at \$12,000 per acre or \$12,632 per producing acre. Land values with planted almonds ranges from \$5,000 to \$19,000.

Building. The metal building(s) are on a cement slab and total approximately 2,400 square feet. The buildings are used for shops and equipment storage. The buildings are located on the grower owned land.

Shop/FieldTools. This includes shop tools and equipment, hand tools, and miscellaneous field tools including pruning equipment. The cost is assumed and not based on any collected data.

Fuel Tanks. Two 500-gallon fuel tanks using gravity feed are on metal stands. The tanks are setup in a cement containment pad that meets federal, state, and county regulations.

Equipment. Farm equipment is purchased new or used, but the study shows the current purchase price for new equipment. The new purchase price is adjusted to 60% to indicate a mix of new and used equipment. Annual ownership costs for equipment and other investments are shown in Table 8. Equipment costs are composed of three parts: non-cash overhead, cash overhead, and operating costs. Both of the overhead factors have been discussed in previous sections. The operating costs consist of repairs, fuel, and lubrication and are discussed under operating costs.

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

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For information concerning the above mentioned University of California publications contact UC DANR Communications Services (1-800-994-8849) or your local county Cooperative Extension office.

UC COOPERATIVE EXTENSION
Table 1. SAMPLE COSTS TO ESTABLISH AN ALMOND ORCHARD
 SAN JOAQUIN VALLEY - NORTH 2006

Year	Cost Per Acre						
	1st	2nd	3rd	4th	5th	6th	7th
Meat Pounds Per Acre:			300	800	1,600	1,800	2,000
Planting Costs:							
Orchard Removal	250						
Orchard Removal; Field Cleanup	111						
Land Preparation:- Subsoil 2X 6' depth	300						
Land Preparation: Disc 2X	13						
Fumigate: Tree Row 11' width	300						
Land Preparation: Disc & Roll	7						
Land Preparation: Put Up Berms	3						
Mark, Plant, Top, Paint, Wrap Trees (Yr 2 included backhoe cost)	158	33					
Trees: 110 Per Acre (1% Replant In 2nd Year)	578	11					
TOTAL PLANTING COSTS	1,720	43					
Cultural Costs:							
Pollination: Hives			125	250	250	250	250
Disease: Brown Rot (Rovral, Oil)			35	43	43	43	43
Disease: Shothole/Scab (Ziram) Petal Fall. Fertilizer: (Zinc)			33	40	40	40	40
Disease: Rust (Abound). Fertilizer: (Zinc)	21	32					
Irrigate: Frost Protection				11	11	11	11
Vertebrate: Gopher & Squirrel (Bait)	26	26	26	26	26	26	26
Fertilize N (3X Yr 1, 21-0-0. 5X Yr 2+, UN32)	59	20	40	60	80	100	120
Weed: Disk	7						
Weed: Float	6						
Weed: Mow (Yr 1, 4X. Yr 2-3, 7X. Yr 4+ 6X)	26	41	41	35	35	35	35
Irrigate: (water + labor)	98	145	196	243	243	243	243
Insect: Mites (AgriMek)	32	55	78	101	101	101	101
Fertilize: Leaf Samples for NPK (ATV, labor, analysis)		2	2	2	2	2	2
Insect: Worm (Intrepid) Hull Split			44	56	56	56	56
Insect: Ants (Clinch)			5	5	5	5	5
Weed: Orchard Floor (Roundup) Preharvest			32	32	32	32	32
Fertilize: Hull Analysis for Boron (ATV, labor, analysis)				1	1	1	1
Fertilize: Boron (Solubor) Applied to Ground			14	14	14	14	14
Fertilize: Potassium Sulfate			39	58	76	94	94
Weed: Spot Spray (Yr. 1, Gramoxone 1X. Yr. 2, Roundup 1X)	5	12					
Weed: Strip & Winter Strip (Prowl, Gramoxone)	26	31					
Weed: Winter Strip Spray (Roundup, Goal, Surflan)			106	106	106	106	106
Prune and/or Train and/or Sucker	48	47	37	121	121	121	121
Prune: Stack Prunings			9	14	14	14	14
Prune: Shred			27	27	27	27	27
Winter Sanitation: Knock Mummies, Blow, Rake, Shred)				145	145	145	145
Pickup Truck Use	89	89	89	89	89	89	89
ATV Truck Use	21	21	21	21	21	21	21
TOTAL CULTURAL COSTS	463	520	1,001	1,501	1,540	1,578	1,578
Harvest Costs:							
Pole Trees			26				
Shake Trees				95	95	95	95
Sweep Nuts				45	45	45	45
Hand Rake			26	2	2	2	2
Pick Up and Haul			76	77	80	81	81
Hull Nuts			9	24	48	54	60
TOTAL HARVEST COSTS			136	244	270	277	284
Interest On Operating Capital @ 9.25%	210	32	31	45	34	35	35
TOTAL OPERATING COSTS/ACRE	2,393	595	1,168	1,791	1,844	1,870	1,896

UC COOPERATIVE EXTENSION
Table 1. CONTINUED
 SAN JOAQUIN VALLEY - NORTH 2006

Year	Cost Per Acre						
	1st	2nd	3rd	4th	5th	6th	7th
	Meat Pounds Per Acre:		300	800	1,600	1,800	2,000
Cash Overhead Costs:							
Office Expense	50	50	50	50	50	50	50
Liability Insurance	6	6	6	6	6	6	6
Sanitation Fees	6	6	6	6	6	6	6
Environmental Fee	5	5	5	5	5	5	5
Property Taxes	144	143	144	144	144	144	144
Property Insurance	12	12	12	12	12	12	12
Investment Repairs	56	56	56	56	56	56	56
TOTAL CASH OVERHEAD COSTS	279	277	278	278	278	278	279
TOTAL CASH COSTS/ACRE	2,672	872	1,447	2,069	2,122	2,171	2,175
INCOME/ACRE FROM PRODUCTION			600	1,600	3,200	3,600	4,000
NET CASH COSTS/ACRE FOR THE YEAR	2,672	872	847	469			
PROFIT/ACRE ABOVE CASH COSTS					1,078	1,429	1,825
ACCUMULATED NET CASH COSTS/ACRE	2,672	3,544	4,391	4,860	3,782	2,353	525
Non-Cash Overhead Costs:							
Capital Recovery Cost:							
Buildings 2400 sqft	75	75	75	75	75	75	75
Land	789	789	789	789	789	789	789
Fuel Tanks 2-500 gal	6	6	6	6	6	6	6
Shop/Field Tools/Equipment	17	17	17	17	17	17	17
Pumping System	34	34	34	34	34	34	35
Micro-Sprinkler Irrigation System	104	104	104	104	104	104	104
Equipment	67	47	60	59	59	59	59
TOTAL NON-CASH OVERHEAD COST/ACRE	1,092	1,072	1,085	1,084	1,084	1,084	1,084
TOTAL COST/ACRE FOR THE YEAR	3,764	1,944	2,532	3,153	3,207	3,256	3,259
INCOME/ACRE FROM PRODUCTION			600	1,600	3,200	3,600	4,000
TOTAL NET COST/ACRE FOR THE YEAR	3,764	1,944	1,932	1,553	7		
NET PROFIT/ACRE ABOVE TOTAL COST						344	741
TOTAL ACCUMULATED NET COST/ACRE	3,764	5,708	7,640	9,193	9,200	8,855	8,112

UC COOPERATIVE EXTENSION

Table 2. MATERIALS AND CUSTOM WORK COSTS PER ACRE - ESTABLISHMENT YEARS

SAN JOAQUIN VALLEY NORTH - 2006

		Year 1		Year 2		Year 3		Year 4		Year 5		Year 6		
		Total Per Acre												
Unit	\$/Unit	units	\$	units	\$	units	\$	units	\$	units	\$	units	\$	
OPERATING COSTS														
Custom:														
Orchard Removal	acre	250.00	1.00	250										
Rip 6 ft 2X	acre	300.00	1.00	300										
Fumigate: Strip (11 ft)	acre	300.00	1.00	300										
Mark, Plant, Top, Wrap Trees	each	1.25	110.00	138	2.00	3								
Backhoe Replants	each	15.00			2.00	30								
Leaf Analysis: NPK	each	30.00			0.05	2	0.05	2	0.05	2	0.05	2	0.05	2
Hull Analysis: B	each	17.00					0	0.03	1	0.03	1	0.03	1	
Pollination: Hives	each	125.00					1.00	125	2.00	250	2.00	250	2.00	250
Shred Brush (prunings)	hour	270.00					0.10	27	0.10	27	0.10	27	0.10	27
Shake Trees (nuts & mummies)	hour	95.00							2.00	190	2.00	190	2.00	190
Sweep (nuts & mummies)	hour	45.00							2.00	90	2.00	90	2.00	90
Pickup Nuts	acre	75.00					1.00	75	1.00	75	1.00	75	1.00	75
Haul Nuts	cwt	0.31					3.00	1	8.00	2	16.00	5	18.00	6
Hull & Shell Nuts	lb	0.03					300.00	9	800.00	24	1,600.00	48	1,800.00	54
Tree/Tree Aids:														
Tree: Almond	tree	5.25	110.00	578	2.00	11								
Paint	tree	0.02	110.00	2										
Tree Wraps	each	0.14	110.00	15	2.00	0								
Irrigation:														
Water - Pumped	acin	4.67	11.00	51	21.00	98	32.00	149	44.00	205	44.00	205	44.00	205
Fertilizer:														
Neutral Zinc	lb	1.08	1.25	1	2.50	3	3.75	4	5.00	5	5.00	5	5.00	5
Solubor (Boron)	lb	0.78					10.00	8	10.00	8	10.00	8	10.00	8
Potassium Sulfate (0-0-50)	lb	0.23					160.00	37	240.00	55	320.00	74	400.00	92
21-0-0	lb N	0.68	20.00	14										
UN-32 (N)	lb N	0.50			40.00	20	80.00	40	120.00	60	160.00	80	200.00	100
Herbicide:														
Prowl 3.3 EC	pint	4.10	3.50	14	2.80	11								
Gramoxone Max	pint	7.33	0.85	6										
Goal 2 XL	pint	16.45					2.80	46	2.80	46	2.80	46	2.80	46
Surflan 4AS	pint	14.52					2.80	41	2.80	41	2.80	41	2.80	41
Roundup Ultra Max	pint	8.58			2.50	21	4.50	39	4.50	39	4.50	39	4.50	39

UC COOPERATIVE EXTENSION
Table 2. CONTINUED
 SAN JOAQUIN VALLEY NORTH - 2006

	Unit	\$/Unit	Year 1		Year 2		Year 3		Year 4		Year 5		Year 6			
			Total Per Acre													
			units	\$	units	\$	units	\$	units	\$	units	\$	units	\$	units	\$
Insecticide:																
Agri-Mek 0.15EC	floz	6.10	3.75	23	7.50	46	11.25	69	15.00	92	15.00	92	15.00	92		
Supreme Oil	gal	4.55				0.75	3	1.00	5	1.00	5	1.00	5			
Clinch (Ants)	lb	14.57				0.25	4	0.25	4	0.25	4	0.25	4			
Intrepid 2F	floz	2.58				13.50	35	18.00	46	18.00	46	18.00	46			
Fungicide:																
Rovral 4F	pint	29.06				0.75	22	1.00	29	1.00	29	1.00	29			
Ziram WDG 76	lb	3.15				6.00	19	8.00	25	8.00	25	8.00	25			
Abound 2EC	floz	2.78	3.50	10	7.00	19										
Rodenticide:																
Gopher Bait Wilco	lb	4.94	1.50	7	1.50	7	1.50	7	1.50	7	1.50	7	1.50	7		
Squirrel Wilco	lb	3.00	1.50	5	1.50	5	1.50	5	1.50	5	1.50	5	1.50	5		
Labor (machine)	hrs	14.49	13.93	202	8.87	129	10.16	147	10.07	146	10.07	146	10.07	146		
Labor (non-machine)	hrs	9.32	18.00	168	10.07	94	15.57	145	20.28	189	20.28	189	20.28	189		
Fuel - Gas	gal	2.55	11.67	30	10.19	26	10.10	26	10.13	26	10.13	26	10.13	26		
Fuel - Diesel	gal	2.00	17.34	35	7.75	16	11.85	24	11.46	23	11.46	23	11.46	23		
Lube				10		6		7		7		7		7		
Machinery repair				26		18		23		22		22		22		
Interest @ 9.25%				210		32		31		45		34		35		
TOTAL				2,393		595		1,169		1,791		1,844		1,890		

Year 7: See Table 4

UC COOPERATIVE EXTENSION
Table 3. COSTS PER ACRE TO PRODUCE ALMONDS
 SAN JOAQUIN VALLEY - NORTH 2006

Operation	Cash and Labor Costs per acre						Your Cost
	Operation Time (Hrs/A)	Labor Cost	Fuel, Lube & Repairs	Material Cost	Custom/Rent	Total Cost	
Cultural:							
Pollination (2 hives)	0.00	0	0	0	250	250	
Disease: Brown Rot (Rovral, Oil)	0.31	5	4	34	0	43	
Irrigation: Frost Protection	0.18	2	0	9	0	11	
Disease: Shothole/Scab (Ziram). Fertilize: (Zn)	0.31	5	4	31	0	40	
Vertebrate: Gopher & Squirrel (Bait)	0.66	11	2	12	0	26	
Fertilize: N @ 200lb N/acre (Urea)	0.69	12	8	100	0	120	
Weed: Mow 6X	1.16	20	15	0	0	35	
Irrigate: (water & labor) 56X	5.04	47	0	196	0	243	
Insect: Mites (AgriMek)	0.31	5	4	92	0	101	
Fertilize: Leaf Samples (collect & analysis) NPK	0.03	1	0	0	2	2	
Insect: NOW (Intrepid)	0.31	5	4	46	0	56	
Insect: Ants (Clinch)	0.08	1	0	4	0	5	
Weed: Preharvest Spray Orchard Floor (Roundup)	0.23	4	3	26	0	32	
Fertilize: Hull Samples (collect & analysis) B	0.03	1	0	0	1	1	
Fertilize: Spray Tree Row (Solubor) B	0.23	4	3	8	0	14	
Fertilize: Potassium Sulfate	0.08	1	1	92	0	94	
Weed: Winter Strip (Roundup, Goal, Surflan)	0.23	4	3	100	0	106	
Prune: Hand	13.00	121	0	0	0	121	
Prune: Stack Prunings	1.50	14	0	0	0	14	
Prune: Shred Prunings (brush)	0.00	0	0	0	27	27	
Winter Sanitation: Shake Mummies, Rake, Sweep, Shred)	0.09	4	1	0	140	145	
Pickup Truck Ranch Use	3.33	58	31	0	0	89	
ATV: General Use	1.00	17	3	0	0	21	
TOTAL CULTURAL COSTS	28.11	333	78	748	419	1,578	
Harvest:							
Shake	0.00	0	0	0	95	95	
Sweep	0.00	0	0	0	45	45	
Hand Rake Nuts	0.25	2	0	0	0	2	
Pickup and Haul Nuts	0.00	0	0	0	81	81	
Hull and Shell Nuts	0.00	0	0	0	60	60	
TOTAL HARVEST COSTS	0.25	2	0	0	281	284	
Interest on operating capital @ 9.25%						34	
TOTAL OPERATING COSTS/ACRE		335	78	748	700	1,896	
CASH OVERHEAD:							
Office Expense						50	
Liability Insurance						6	
Sanitation Fees						6	
Environmental Fee						5	
Property Taxes						166	
Property Insurance						27	
Investment Repairs						60	
TOTAL CASH OVERHEAD COSTS						320	
TOTAL CASH COSTS/ACRE						2,216	
Non-cash Overhead (Capital Recovery) Investment							
		Per producing Acre		Annual Cost			
				Capital Recovery			
Buildings		842		75		75	
Land		12,632		789		789	
Fuel Tanks 2-500 gal		69		6		6	
Shop & Field Tools		158		17		17	
Pumping System		425		34		34	
Sprinkler Irrigation System		1300		104		104	
Orchard Establishment Costs		4391		373		373	
Equipment		534		59		59	
TOTAL NON-CASH OVERHEAD COSTS		20,350		1,457		1,457	
TOTAL COSTS/ACRE						3,673	

UC COOPERATIVE EXTENSION
Table 4. COSTS AND RETURNS PER ACRE TO PRODUCE ALMONDS
 SAN JOAQUIN VALLEY - NORTH 2006

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
Almonds	2,000.00	lb	2.00	4,000	
OPERATING COSTS					
Insecticide:					
Supreme Oil	1.00	gal	4.55	5	
Agri-Mek 0.15 EC	15.00	floz	6.10	92	
Intrepid 2F	18.00	floz	2.58	46	
Clinch	0.25	lb	14.57	4	
Fungicide:					
Rovral 4 Flowable	1.00	pint	29.06	29	
Ziram WDG 76	8.00	lb	3.15	25	
Rodenticide:					
Gopher Bait Wilco	1.50	lb	4.94	7	
Squirrel Bait Wilco	1.50	lb	3.00	5	
Herbicide:					
Roundup Ultra Max	4.50	pint	8.58	39	
Goal 2 XL	2.80	pint	16.45	46	
Surflan AS	2.80	pint	14.52	41	
Fertilizer:					
Neutral Zinc (52% Zn)	5.00	lb	1.08	5	
UN-32	200.00	lb N	0.50	100	
Solubor (Boron)	10.00	lb	0.78	8	
Potassium Sulfate (0-0-50)	400.00	lb	0.23	92	
Irrigation:					
Water – Pumped (includes frost protection)	44.00	acin	4.67	205	
Custom/Contract:					
Hives (Pollination)	2.00	hives	125.00	250	
Leaf Analysis: NPK (2 samples/40 acres)	0.05	each	30.00	2	
Hull Analysis: B (1 sample/40 acres)	0.03	each	17.00	0	
Shake Trees	2.00	hour	95.00	190	
Sweep Nuts	2.00	hour	45.00	90	
Pickup Nuts	1.00	acre	75.00	75	
Haul Nuts	20.00	cwt	0.31	6	
Hull & Shell Nuts	2,000.00	lb	0.03	60	
Shred Brush	0.10	hour	270.00	27	
Labor (machine)	10.07	hrs	14.49	146	
Labor (non-machine)	20.28	hrs	9.32	189	
Fuel - Gas	10.13	gal	2.55	26	
Fuel - Diesel	11.46	gal	2.00	23	
Lube				7	
Machinery repair				22	
Interest on operating capital @ 9.25%				35	
TOTAL OPERATING COSTS/ACRE				1,896	
NET RETURNS ABOVE OPERATING COSTS				2,104	
CASH OVERHEAD COSTS:					
Office Expense				50	
Liability Insurance				6	
Sanitation Fees				6	
Environmental Fee				5	
Property Taxes				166	
Property Insurance				27	
Investment Repairs				60	
TOTAL CASH OVERHEAD COSTS/ACRE				320	
TOTAL CASH COSTS/ACRE				2,216	

UC COOPERATIVE EXTENSION
Table 4. CONTINUED
 SAN JOAQUIN VALLEY - NORTH 2006

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
NON-CASH OVERHEAD COSTS (Capital Recovery)					
Buildings				75	
Land				789	
Fuel Tanks 2-500g				6	
Shop & Field Tools				17	
Pumping System				104	
Sprinkler Irrigation System				34	
Orchard Establishment Costs				373	
Equipment				59	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				1,457	
TOTAL COSTS/ACRE				3,673	
NET RETURNS ABOVE TOTAL COSTS				327	

UC COOPERATIVE EXTENSION
Table 5. MONTHLY CASH COSTS - ALMONDS
 SAN JOAQUIN VALLEY - NORTH 2006

Beginning JAN 06	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Ending DEC 06	06	06	06	06	06	06	06	06	06	06	06	06	
Cultural:													
Pollination (2 hives)		250											250
Disease: Brown Rot (Rovral, Oil)		43											43
Irrigate: Frost Protection		6	6										11
Disease: Shothole/Scab (Ziram). Fertilize: (Zn)			40										40
Vertebrate: Gopher & Squirrel (Bait)			14					11					26
Fertilize: N @ 200lb N/acre (Urea)				20	20	20	20	20					100
Weed: Mow 6X			6	6	6	6	6	6					35
Irrigate: (water & labor) 10X			8	22	31	41	49	43	32	17			243
Insect: Mites (AgriMek)					101								101
Fertilize: Leaf Samples (collect & analysis) NPK							2						2
Insect: NOW (Intrepid)							56						56
Insect: Ants (Clinch)							5						5
Weed: Preharvest Spray Orchard Floor (Roundup)								32					32
Fertilize: Hull Samples (collect & analysis) B									1				1
Fertilize: Spray Tree Row (Solubor) B									14				14
Fertilize: Potassium Sulfate										94			94
Weed: Winter Strip (Roundup, Goal, Surflan)											106		106
Prune: Hand											121		121
Prune: Stack Prunings											14		14
Prune: Shred Prunings (brush)											27		27
Winter Sanitation: Shake Mummies, Rake, Sweep, Shred												145	145
Pickup Truck Ranch Use	7	7	7	7	7	7	7	7	7	7	7	7	89
ATV: General Use	2	2	2	2	2	2	2	2	2	2	2	2	21
TOTAL CULTURAL COSTS	9	308	83	57	167	76	147	122	57	121	277	154	1,578
Harvest:													
Shake									95				95
Sweep									45				45
Hand Rake Nuts									2				2
Pickup and Haul Nuts									81				81
Hull and Shell Nuts									60				60
TOTAL HARVEST COSTS									284	0	0	0	284
Interest on operating capital @ 9.25%	0	2	3	4	5	5	7	7	10	-4	-3	-1	35
TOTAL OPERATING COSTS/ACRE	9	310	86	60	172	81	154	129	351	117	274	153	1,896

UC COOPERATIVE EXTENSION
Table 5. CONTINUED
 SAN JOAQUIN VALLEY - NORTH 2006

Beginning JAN 06	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
Ending DEC 06	06	06	06	06	06	06	06	06	06	06	06	06	
CASH OVERHEAD:													
Office Expense	4	4	4	4	4	4	4	4	4	4	4	4	50
Liability Insurance		6											6
Sanitation Fees	6												6
Environmental Fee				5									5
Property Taxes	83						83						166
Property Insurance	14						14						27
Investment Repairs	5	5	5	5	5	5	5	5	5	5	5	5	60
TOTAL CASH OVERHEAD COSTS	112	15	9	14	9	9	106	9	9	9	9	9	320
TOTAL CASH COSTS/ACRE	121	325	95	75	181	90	260	138	360	126	283	162	2,216

UC COOPERATIVE EXTENSION
Table 6. RANGING ANALYSIS
 SAN JOAQUIN VALLEY - NORTH 2006

COSTS PER ACRE AT VARYING YIELDS TO PRODUCE ALMONDS

	YIELD (lb/acre)						
	1,400	1,600	1,800	2,000	2,200	2,400	2,600
OPERATING COSTS/ACRE:							
Cultural Cost	1,578	1,578	1,578	1,578	1,578	1,578	1,578
Harvest Cost	263	270	277	284	290	297	304
Interest on operating capital @ 9.25%	34	35	35	35	35	35	35
TOTAL OPERATING COSTS/ACRE	1,875	1,883	1,890	1,897	1,903	1,910	1,917
TOTAL OPERATING COSTS/LB	1.34	1.18	1.05	0.95	0.87	0.80	0.74
CASH Overhead Costs/ACRE	320	320	320	320	320	320	320
TOTAL CASH COSTS/ACRE	2,195	2,203	2,210	2,217	2,223	2,230	2,237
TOTAL CASH COSTS/LB	1.57	1.38	1.23	1.11	1.01	0.93	0.86
NON-CASH Overhead Costs/ACRE	1,457	1,457	1,457	1,457	1,457	1,457	1,457
TOTAL COSTS/ACRE	3,652	3,660	3,667	3,674	3,680	3,687	3,694
TOTAL COSTS/LB	2.61	2.29	2.04	1.84	1.67	1.54	1.42

NET RETURNS PER ACRE ABOVE OPERATING COSTS

PRICE	YIELD (lb/acre)						
	\$/lb	1,400	1,600	1,800	2,000	2,200	2,400
1.20	-195	37	270	503	737	970	1,203
1.40	85	357	630	903	1,177	1,450	1,723
1.60	365	677	990	1,303	1,617	1,930	2,243
1.80	645	997	1,350	1,703	2,057	2,410	2,763
2.00	925	1,317	1,710	2,103	2,497	2,890	3,283
2.20	1,205	1,637	2,070	2,503	2,937	3,370	3,803
2.40	1,485	1,957	2,430	2,903	3,377	3,850	4,323

NET RETURNS PER ACRE ABOVE CASH COSTS

PRICE	YIELD (lb/acre)						
	\$/lb	1,400	1,600	1,800	2,000	2,200	2,400
1.20	-515	-283	-50	183	417	650	883
1.40	-235	37	310	583	857	1,130	1,403
1.60	45	357	670	983	1,297	1,610	1,923
1.80	325	677	1,030	1,383	1,737	2,090	2,443
2.00	605	997	1,390	1,783	2,177	2,570	2,963
2.20	885	1,317	1,750	2,183	2,617	3,050	3,483
2.40	1,165	1,637	2,110	2,583	3,057	3,530	4,003

NET RETURNS PER ACRE ABOVE TOTAL COSTS

PRICE	YIELD (lb/acre)						
	\$/lb	1,400	1,600	1,800	2,000	2,200	2,400
1.20	-1,972	-1,740	-1,507	-1,274	-1,040	-807	-574
1.40	-1,692	-1,420	-1,147	-874	-600	-327	-54
1.60	-1,412	-1,100	-787	-474	-160	153	466
1.80	-1,132	-780	-427	-74	280	633	986
2.00	-852	-460	-67	326	720	1,113	1,506
2.20	-572	-140	293	726	1,160	1,593	2,026
2.40	-637	180	653	1,126	1,600	2,073	2,546

UC COOPERATIVE EXTENSION
Table 7. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD COSTS
 SAN JOAQUIN VALLEY - NORTH 2006

ANNUAL EQUIPMENT COSTS

Yr	Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead		Total
						Insur- ance	Taxes	
06	66 HP 2WD Tractor	46,230	20	5,932	3,956	183	261	4,399
06	ATV 4WD	5,790	7	2,196	787	28	40	855
06	Mower/Chopper - 8'	6,713	10	1,187	834	28	40	901
06	Orchard Sprayer 500 gal	21,000	15	2,016	2,113	81	115	2,308
06	Pickup 1/2 ton	26,000	7	9,863	3,533	126	179	3,838
06	Spin/Spreader-Pull	11,000	20	573	963	41	58	1,062
06	Weed Sprayer 100 gal	4,000	10	707	497	16	24	537
TOTAL		120,733		22,474	12,682	501	716	13,900
60% of New Cost*		72,440		13,484	7,609	301	430	8,340

*Used to reflect a mix of new and used equipment

ANNUAL INVESTMENT COSTS

Description	Price	Yrs Life	Salvage Value	Capital Recovery	Cash Overhead			Total
					Insur- ance	Taxes	Repairs	
INVESTMENT								
Orchard Establishment	175,640	22		14,905	615	878	175	16,573
Buildings 2400 sqft	80,000	20		7,117	280	400	1,600	9,397
Sprinkler Irrigation System (40 acres)	52,000	25		4,165	182	260	1,040	5,647
Pumping System -Pump & Well (40 acres)	17,000	25		1,362	60	85	340	1,846
Fuel Tanks 2-500 gal	6,514	20	651	562	25	36	130	753
Land	1,200,000	22	120,000	75,000	0	12,000	0	87,000
Shop & Field Tools/Equipment	15,000	15		1,570	53	75	300	1,997
TOTAL INVESTMENT	1,546,154		120,651	104,680	1,214	13,734	3,585	123,213

ANNUAL BUSINESS OVERHEAD COSTS

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Environmental Fee	95	acre	5.26	500
Liability Insurance	100	acre	5.29	529
Office Expense	95	acre	50.00	4,750
Sanitation Fees	95	acre	5.89	560

UC COOPERATIVE EXTENSION
Table 8. HOURLY EQUIPMENT COSTS
 SAN JOAQUIN VALLEY - NORTH 2006

Yr	Description	Actual Hours Used	COSTS PER HOUR						Total Costs/Hr.
			Capital Recovery	Cash Overhead		Operating			
				Insur- ance	Taxes	Repairs	Fuel & Lube	Total Oper.	
06	66 HP 2WD Tractor	600.10	3.95	0.18	0.26	1.87	7.34	9.21	13.60
06	ATV 4WD	283.60	1.66	0.06	0.08	0.43	2.93	3.36	5.16
06	Mower/Chopper - 8'	199.90	2.50	0.08	0.12	2.78	0.00	2.78	5.48
06	Orch.Sprayer 500 G	119.90	10.57	0.40	0.58	3.21	0.00	3.21	14.76
06	Pickup 1/2 ton	285.30	7.43	0.26	0.38	1.91	7.33	9.24	17.31
06	Spin/Spreader-Pull	60.10	9.62	0.40	0.58	4.04	0.00	4.04	14.64
06	Weed Sprayer 100 G	150.40	1.98	0.07	0.09	1.07	0.00	1.07	3.21

UC COOPERATIVE EXTENSION
Table 9. OPERATIONS WITH EQUIPMENT
 SAN JOAQUIN VALLEY NORTH - 2006

Operation	Operation Month	Equipment Tractor	Implement	Non-Mach		Broadcast Rate/acre	Unit
				Labor hrs/acre	Material		
Cultural:							
Pollination	February	Custom			Hives	2.00	each
Disease: Brown Rot	February	66HP 2WD	Orchard Sprayer		Rovral	1.00	pint
Disease: Shothole & Scab. Fertilizer: Foliar	March	66HP 2WD	Orchard Sprayer		Supreme Oil	1.00	gal
					Ziram	8.00	lb
					Neutral Zinc	5.00	lb
					Gopher Bait	1.50	lb
Vertebrate: Gopher & Squirrel	March	ATV			Squirrel Bait	1.50	lb
	August	ATV					
Fertilize: N (through sprinklers)	April				UN32	40.00	lb N
	May				UN32	40.00	lb N
	June				UN32	40.00	lb N
	July				UN32	40.00	
	August				UN32	40.00	
Weed: Mow	March	66HP 2WD	Mower/Chopper				
	April	66HP 2WD	Mower/Chopper				
	May	66HP 2WD	Mower/Chopper				
	June	66HP 2WD	Mower/Chopper				
	July	66HP 2WD	Mower/Chopper				
	August	66HP 2WD	Mower/Chopper				
Irrigate: Frost Protection	February			0.09	Water	1.00	acin
	March			0.09	Water	1.00	acin
Irrigate: water & labor	March			0.36	Water	1.00	acin
	April			0.72	Water	3.25	acin
	May			0.72	Water	5.25	acin
	June			0.72	Water	7.25	acin
	July			0.72	Water	9.00	acin
	August			0.72	Water	7.75	acin
	September			0.72	Water	5.50	acin
	October			0.36	Water	3.00	acin
Insect: Mites	May	66HP 2WD	Orchard Sprayer		Agri-Mek	15.00	floz
Fertilize: Leaf Samples	July	ATV		0.03	Analysis	0.05	each
Insect: Worms	July	66HP 2WD	Orchard Sprayer		Intrepid	18.00	floz
Insect: Ants	July	ATV			Clinch	0.25	lb
Weed: Spray Orchard Floor (Preharvest)	August	66HP 2WD	Weed Sprayer		Roundup	3.00	pint
Harvest: Shake Trees	September	Custom			Shake	1.00	hour
Harvest: Sweep Nuts	September	Custom			Sweep	1.00	hour
Harvest: Hand Rake Nuts	September			0.30			
Harvest: Pickup & Haul Nuts	September	Custom			Pickup Haul	20.00	cwt
Hull & Shell Nuts	September	Custom			Hull & Shell	2,000.00	lb
Fertilizer: Hull Samples	September	ATV		0.03	Analysis	0.03	each
Fertilize: Tree Row Spray Boron	September	66HP 2WD	Weed Sprayer		Solubor	10.00	lb
Fertilize: Potassium sulfate	October	66HP 2WD	Spreader		0-0-50	400.00	lb
Weed: Winter Strip	November	66HP 2WD	Weed Sprayer		Roundup	1.50	pint
					Goal	2.80	pint
					Surflan	2.80	pint
Prune: Hand	November			13.00			
Prune: Stack Prunings	November			1.50			
Prune: Shred Prunings	November	Custom			Shred	0.10	hour
Winter Sanitation:	December	66HP 2WD	Mower/Chopper		Shake	1.00	hour
					Custom		
					Custom	0.30	Sweep