University of California Agriculture and Natural Resources
Cooperative Extension and Agricultural Issues Center
UC Davis Department of Agricultural and Resource Economics

2017

SAMPLE COSTS TO PRODUCE AND HARVEST FRESH MARKET RASPBERRIES

Primocane Bearing

Central Coast Region

Santa Cruz, Monterey and San Benito Counties

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CONTENTS

INTRODUCTION

Sample costs to establish, produce and harvest raspberries in Santa Cruz, Monterey and San Benito Counties are presented in this study. The study is intended as a guide only, and can be used to make production decisions, estimate potential returns, prepare budgets and evaluate production loans. The practices described are based on production and harvest procedures considered typical for this crop and area, and may not apply to every farm. Sample costs for labor, materials, equipment and custom services are based on current figures. A blank column, "Your Cost", is provided to enter your actual costs on Tables 2 and 3, and Tables 4-6 a and b.

The hypothetical farm operation, production practices, overhead, and calculations are described under assumptions. For additional information or explanation of calculations used in the study call the Agricultural Issues Center, University of California, Davis, (530) 752-4651, UC Cooperative Extension Santa Cruz County, Mark Bolda (831) 763-8025 or Laura Tourte (831) 763-8005.

Sample Cost of Production studies for many commodities are available and can be downloaded from the website https://coststudies.ucdavis.edu. Archived studies are also available on the website.

ASSUMPTIONS

The following assumptions refer to calculations in Tables 1 to 8 and pertain to sample costs to establish, produce and harvest fresh market primocane bearing raspberries in the Central Coast Region - Santa Cruz, Monterey and San Benito Counties. Practices described represent methods considered typical for raspberry production in the region. The costs, practices, and materials will not be applicable to all situations every production year. Cultural practices, materials, and raspberry production and harvest costs vary by grower and region, and differences can be significant. The practices and inputs used in the cost study serve 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.**

Raspberries are also produced using organic methods along the Central Coast, with roughly 20 percent of the crop produced and marketed as organic. Many of the same practices that are used in conventional raspberry production are also used in organic production. Differences between the two production systems are primarily, but not exclusively, found in approaches to crop fertilization and pest management.

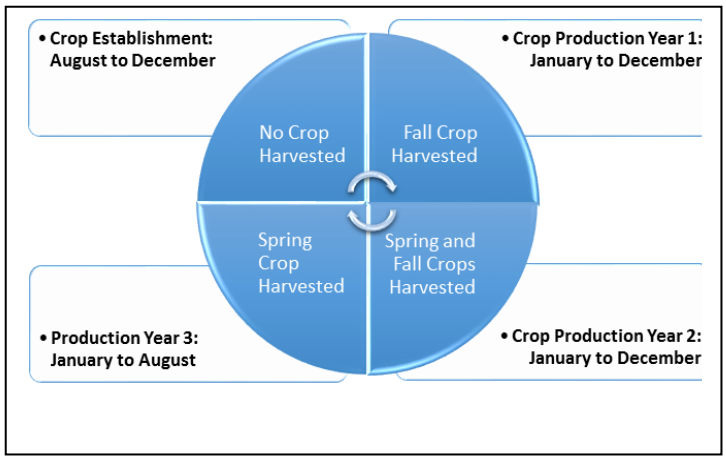
Farm. The farm consists of 45 contiguous acres of land. Raspberries are planted on 42 acres. Roads, the irrigation system and buildings account for additional three acres. The grower rents the land for $2,900 per acre per year and owns the equipment and machinery. In this study one production block and one crop rotation are outlined. However, to better utilize equipment and labor most growers will farm multiple blocks at the same time.

Establishment Year: Cultural Practices and Material Inputs

Tables 1, 2 and 3

Raspberries are a perennial crop that, when well-managed, can produce for up to five years in this region. For this study and location, we consider costs associated with the establishment of a primocane bearing raspberry planting, along with costs and returns for the production and harvest of a total of four crops. This planting, production and harvest cycle is intended to ensure optimal productivity and fruit quality.

Crop Cycle Summary. For Central Coast raspberries, the complete crop cycle begins by preparing the field and planting raspberries during the establishment year, which begins in August and ends in December. The first production and fall harvest cycle, called Production Year 1, begins in January and ends in December. One spring and one fall crop is produced and harvested in Production Year 2, which begins in January and ends in December. A fourth crop is produced and harvested in Production Year 3, from January to June. The full raspberry crop cycle is completed in July and August with postharvest crop removal and field preparation for the next crop cycle.



Land Preparation. Two soil samples per 42 acres are taken for soil analysis prior to land preparation to help determine fertilization practices. The field is then ripped three feet deep, disked, ring rolled and landplaned. Six tons of composted greenwaste is applied and incorporated into the soil by disking. Following these operations the field is again landplaned, then chiseled, and sprinkler irrigated to ensure adequate moisture for fumigation.

The field is then fumigated with a combination of chloropicrin and 1,3-dichloropropene for pest management purposes. Cost for a solid, tarped fumigation is estimated at $4,000 per acre. After fumigation, the field is disked again and rototilled, if necessary, to break cloddy soils. Beds are then listed and shaped.

Fertilize. Fertilizer and application rate decisions are based on soil sampling and analysis as noted above. In addition to a composted greenwaste, 300 pounds of an NPK fertilizer blend (18-8-13) is band applied before planting during the crop establishment year. During Production Years 1 and 2, additional fertilizers are applied, which are discussed later in the study and shown on corresponding tables.

Plant. Several raspberry varieties are planted in the region, however, no specific variety is assumed in this study. The price of roots (plant stock) depends on the variety selected and on possible storage charges; for this study the cost for raspberry plant stock is $11.00 per pound. This price falls within the range of prices for purchases of 1,000 pounds or more. Raspberries are planted by hand in late November (they can be planted as late as March) in rows using a 7-foot spacing. Labor is estimated at 28 hours to plant 260 pounds of plant stock per acre.

Irrigate. In years with deficient fall and winter rains and therefore deficient soil moisture, a sprinkler irrigation system is set up after planting and three acre inches of water are applied. The sprinkler system is then removed from the field.

Production Years 1 to 3: Cultural Practices and Material Inputs

Tables 4 – 6 a, b, c and d

Trellis. Each acre of the raspberry production operation is assumed to be 300 feet long and 154 feet wide, with 21 crop rows per acre using a 7-foot row spacing. A trellis system is installed in March of Production Year 1. The total cost is estimated at $2,560 per acre, which includes materials and labor. Material costs include end posts, stakes and the wire system. Because trellis materials can be used for other plantings, the material cost (estimated at roughly $1,900 per acre) is included in the non-cash or investment overhead and amortized accordingly. Installation labor is estimated at 41 hours per acre.

Irrigate. A drip irrigation system is installed in Production Year 1 to irrigate the raspberry crop as needed during Production Years 1, 2 and 3. The drip line is tied to the lower wire of the trellis and emitters placed every 6-inches. During winters, crop growth is generally dependent on seasonal rains. The total number of irrigations varies depending on seasonal conditions. For this study, raspberries are irrigated from March through October, using a total of 22 acre-inches of water in Production Year 1. For Production Year 2 water use is estimated at 36 acre-inches per acre, or 18 acre-inches for each of the spring and fall crops. In Production Year 3, the crop is irrigated from March to July using 12 acre-inches of water per acre. The cost of pumped water is $22.50 per acre inch, for a total of $270 per acre foot. The drip line is removed and disposed of as part of postharvest operations after the last harvest in Production Year 3. The total amount and cost of water may differ substantially in this area depending on factors such as climatic conditions, soil type, well depth and pumping variables, water district or agency, and associated delivery or other fees.

Tunnels. Tunnels, also called hoop houses, are constructed over the planted raspberries. Each tunnel is 21 feet wide (covering three rows) and 300 feet long. The structures consist of a line of anchor posts, bridged by a metal frame, and covered with a 5 mil thick semi-clear plastic, which is tied down with rope. Struts on each side of the tunnel maintain tension down the length of the structure. Plastic is taken down and secured, and unfurled and put over the structures, as needed, to ensure optimal growing conditions each year. The structure are removed at the end of the cropping cycle and all but the plastic can be used for a subsequent crop. Labor

for tunnel installation is included in the Production Year 1 costs. Management costs are included in all production years.

Fertilize. In this study a total of three leaf samples are taken per production year and analyzed to assist with fertility management and the nutritional needs of the plants. Following the 300 pounds per acre of slow release fertilizer that is applied pre-plant, liquid fertilizers are applied through the drip system during the three production years. For the fall crop in Production Year 1, alternating weekly applications of CN9, CAN17, and ammonium sulfate are made during the vegetative growth phase, which begins in March and ends in July. Beginning in August, applications of 20-20-20 and 10-30-30 are made during the flowering/fruiting phase.

Production Year 2 spring crop fertility practices are the same as for the fall crop in Production Year 1, but begin instead in February during the vegetative growth phase and end April at the onset of flowering. For the fall crop in Production Year 2, fertilizer inputs are similar to those for the Production Year 1 fall crop but applications are made in July only. Depending on plant health and vigor, however, some growers may decrease fertility applications during this time period.

For the spring crop in Production Year 3 fertilizer inputs are the same as for the Production Year 2 spring crop. Though none are included in this study, some growers may also supplement these practices with micronutrient fertilizer applications.

Pest Management. The pesticides and rates mentioned in this cost study are listed in *UC Integrated Pest Management Guidelines, Caneberries* and the *UC Fresh Market Caneberry Production Manual.* For information on other pesticides available, pest identification, monitoring, and management visit the UC IPM website at http://ipm.ucanr.edu or contact your local UCCE farm advisor. Information and pesticide use permits are available through the local county agricultural commissioner's office. Pesticides discussed in this study are commonly used in raspberry production and are those used to calculate rates and costs. However, they are not recommendations, and other pesticides may be available. Spray adjuvants are recommended for use with many pesticides, but are not included here. Pesticide costs vary by location, brand, and grower volume. The pesticide costs in this study are gathered from various dealers and shown at full retail.

Pest Control Adviser (PCA). A PCA monitors the field during Production Years 1, 2 and 3 for pest problems and nutritional status. Growers may hire private consultants on a per acre basis or as part of an agreement with an agricultural chemical and fertilizer company. In this study costs for a PCA are included in the three production years at $125 per acre per year.

Weeds. During the three production years weeds are managed primarily by monthly hand weeding in January, February and March of Production Years 1 and 2 at a labor cost of $300 per acre per year. In Production Year 3 labor cost is reduced to $150 per acre because of the shortened production cycle. In each year row middles are disced. Some growers may use additional hand weeding labor in anchor rows during spring and summer. Other growers may install weed mats in the anchor rows to assist with management. Costs per acre will differ depending on weed management strategy.

Insects (Arthropods). In all production years some combination of pest management materials is used to control leafrollers, aphids, leafhoppers, mites, thrips, and vinegar flies. Applications vary from year to year depending upon pest pressure. In this study, for Production Year 1, Dipel and Mustang are applied once in July, Dipel and Mustang are applied twice in August (once with Savey), and in September Malathion and Acramite are applied. For Production Year 2 Dipel, Malathion and Delegate are applied once in the spring; the remainder of pest management practices are the same as in Production Year 1. In Production Year 3 the crop is

treated once with Dipel, Malathion, and Delegate in May. In addition, in March of all three production years pheromone twist ties are placed in the field to assist with the control of Light Brown Apple Moth (LBAM). The beneficial mite *Persimilis* is also released in the field to assist with mite control.

Diseases. In Production Year 1, Rally is applied twice, once July (with the Dipel and Mustang) and once in September (with the Malathion and Acramite) to control mildew and rust. Switch is applied once (with Dipel and Malathion) for mold, and Pristine is applied once (with Dipel, Mustang and Savey) for mold, mildew and rust. For Production Year 2, disease management practices are similar to Production Year 1. For Production Year 3, Switch is applied once in May (with the Dipel, Malathion and Delegrate), and is the only disease management application in this production year.

Pollination. Bees are necessary for raspberry pollination. Cost per production year is estimated at $220 per acre, or two hives at $110 per hive. The grower contracts with a beekeeper; hives are set out in July of Production Year 1 for three months, in March for two months and July for three months during Production Year 2, and again in March for three months during Production Year 3.

Harvest. Production Year 1 harvest begins in August and extends through October. Production Year 2 two crops are produced and managed simultaneously, with the spring harvest performed during April, May and June and the fall harvest from August through October. Production Year 3 harvest may start as early as April and continue until the end of June. Raspberries are harvested by hand every few days at an average seasonal piece rate cost of $6.50 per tray. Crew size and number of crews may vary through the season depending upon the yield. Harvest rate per person ranges from one to five trays per hour, with the lower rate occurring early and late in the season. The fruit is picked using one-half gallon buckets. It is then field sorted and packed into a tray containing 12 six ounce plastic clam shells. Each tray weighs 4.5 pounds. A covered packing and sorting wagon/trailer with a stainless steel table top is pulled by a small tractor to the harvest area. The wagon is managed by a supervisor. Harvesters consist of one crew of 36 who hand pick the berries, a crew supervisor and a checker-loader who records the trays picked by each crew member and who also loads the trays on the truck. The truck holds up to two pallets with 144 trays per pallet and takes one hour round trip to deliver the fruit to the cooler. For this study, it is assumed that the truck makes at least one trip per day. To keep fruit at an optimal postharvest temperature, the truck may make deliveries to the cooler with less than full loads. The cooler charges $0.85 per tray for cooling services.

Yields and Returns. This study estimates a yield range for the Production Year 1 fall crop of 3,500 to 6,000 4.5 pound trays per acre, with a representative marketable yield at 4,750 trays per acre. Canes for the spring crop in Production Year 2 are managed for optimum yield; yield is therefore the same as for Production Year 1. This style of management results in suppressed yield for the fall crop in Production Year 2, which is reduced by about 40 percent. Yield in Production Year 3 rebounds and is the same as for the first and second crops. Yields may vary from grower to grower depending on different production conditions and management practices.

The estimated unit price to growers in all three production years is $15 per tray based on the 2013 to 2017 Salinas-Watsonville shipping point prices from the USDA Agricultural Marketing Service. Prices range from a low of $10 to a high of $22 depending on market conditions. Estimated net returns to growers for a combination of yields and prices for are shown on Tables 4d, 5d and 6d, Ranging Analysis.

Prune/Train. Raspberry plants are not pruned, but are trained during Production Year 1. Labor for training is estimated at 70 hours per acre. During Production Year 2 two raspberry crops are pruned/managed simultaneously. Management begins in January by pruning canes that have fruited from the Production Year 1 fall crop. At the same time, canes that are already growing for the Production Year 2 spring crop are trained

and adjusted on the trellis system. Labor is estimated at 160 hours per acre for these two operations. Production Year 1 pruned canes are left on the ground and shredded and disked in March. In February, newly emerging canes for the Production Year 2 fall crop are suppressed with a Shark herbicide application and then clipped by hand in April. Labor for this operation is estimated at 35 hours per acre. The Shark herbicide also helps with weed control in cane rows. In January of Production Year 3 fruited canes from the Production Year 2 fall crop are pruned, shredded, and disked. Growing canes for the Production Year 3 spring crop are trained and adjusted on the trellis system. Labor is estimated at 70 hours per acre. In February any new, emerging growth and canes are suppressed with Shark, and clipped by hand in April. Labor is estimated at 35 hours per acre. Pruning and clipping practices for the crop cycle, and the associated costs for labor, can vary substantially from grower to grower.

Tunnel/Trellis Removal and Postharvest Operations. Following harvest of the Production Year 3 spring crop, raspberry canes is removed from the field, along with the tunnel, trellis, and drip systems. Materials from the tunnel and trellis systems may be reusable, except for the tunnel plastic. The drip tape is not reusable. Postharvest operations are estimated at $2,300 per acre, or 143 labor hours per acre. Operations to prepare the field for the next crop take place after postharvest operations.

Early Crop Termination or Crop Extension. Depending on growing conditions, plant health and vigor some growers may choose to terminate the crop production cycle early, removing plants and preparing the field for the next crop cycle following the spring crop in Production Year 2. Growers may also choose to stop production and remove the planting prior to Production Year 3 because of labor constraints, availability and cost. In contrast, under conditions where plant growth, health and vigor is not compromised by poor production conditions and/or labor constraints, some growers may extend the cropping cycle to the following spring.

Growing Costs. Some growers along the Central Coast of California prefer to focus on growing costs and therefore separate total harvest costs from total cash costs, equipment depreciation and replacement costs. For this study, growing costs are noted at the bottom of Tables 4a, 5a and 6a and are calculated by subtracting total harvest costs from total costs. Growing costs depend upon many variables including location and grower.

Labor, Equipment, and Interest Costs

Labor. Labor rates are estimated at $21.70 per hour for machine operators and $16.10 for field labor, which includes overhead of 40 percent. The basic hourly wages are $15.50 for machine operators and $11.50 for general labor. The overhead includes the employers' share of federal and California state payroll taxes, workers' compensation insurance for strawberry crops (code 0079), and a percentage for other possible benefits. Workers' compensation costs will vary among growers, but for this study the cost is based upon the average industry rate as of January 1, 2017. Labor for operations involving machinery are 20 percent higher than the operation time given in Table 2, 4a, 5a and 6a to account for the extra labor involved in equipment set up, moving, maintenance, work breaks, and field repair.

New minimum wage and overtime laws were passed in California in 2016 and are currently being phased in. It is not yet clear what the overall impact of the laws will be on prevailing agricultural wages, therefore agricultural labor costs are currently in flux and may differ substantially from those shown in this study. Growers may may already pay wages that are higher than the state's legal requirement as is shown in the study for 2017. Tables A and B show the phase-in schedules for the minimum wage and overtime laws.

Table A. Minimum Wage Phase-In Schedule, 2017 to 2022†

Year	California Minimum Wage	Minimum Wage Increase (%)
2017	10.50	5.0 ‡
2018	11.00	4.8
2019	12.00	9.0
2020	13.00	8.3
2021	14.00	7.7
2022	15.00	7.1

† For employers with 26 or more employees.
‡ Increase in minimum wage from 2016 to 2017.

Table B. Overtime Phase-In Schedule, 2017 to 2022†

Year	California Overtime Phase-In Hours Per Week	Overtime Hours/Week‡
2017	60	na
2018	60	na
2019	55	5
2020	50	10
2021	45	15
2022	40	20

† For employers with 26 or more employees.
‡ Assuming a 60-hour work week and no other adjustments.

The new overtime law will gradually decrease the number of hours employees can work on a daily and weekly basis before overtime wages are required. Prior to its passage field workers and equipment operators could work up to 10 hours per day or 60 hours per week without overtime wages. By 2022 the requirement will be lowered to 8 hours per day or 40 hours per week for employers with 26 or more employees. The new overtime law may change wages and scheduling of work in complicated ways as it is phased in.

Growers may also choose to use a farm labor contractor or the H-2A guestworker visa program to employ workers. When using either one of these two approaches, base rates, overhead and compliance with housing, meals, transportation, and other requirements will vary. Use of these services may result in labor costs that are higher than those shown in this study but may be necessary in order to assure a reliable supply of labor.

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 4.50 percent 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 is considered a typical lending rate by a farm lending agency as of January 2017.

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 and Biological Engineers (ASABE). Fuel and lubrication costs are also determined by ASABE equations based on maximum power takeoff (PTO) horsepower, and fuel type. Prices for on-farm delivery of red dye diesel and gasoline are $2.92 (excludes excise tax) and $3.25 per gallon, respectively. The cost includes a 2 percent local sales tax on diesel fuel and 8 percent sales tax on gasoline. Gasoline cost also includes federal and state excise taxes, which are refundable for on-farm use when filing income taxes. The fuel, lube, and repair cost per acre for each operation in Tables 4a, 5a and 6a 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 percent higher than implement time for a given operation to account for setup, travel and down time.

Pickup Truck/ATV. This study includes a cost for the use of a pickup truck and ATV for business purposes.

Risk. The risks associated with producing and marketing fresh market raspberries are considered high. While this study makes every effort to model a production system based on typical, real world practices, it cannot fully represent the production, financial, market, legal, and human resource risks that ultimately affect the profitability and economic viability of fresh market raspberries. In this area invasive pests pose regulatory and management challenges and increase production and marketing risks for growers. Labor availability,

scheduling and cost is a noteworthy human resource risk. Securing and retaining a sufficient number of workers to ensure timely and effective farm operations is challenging. Growers report paying higher wages and/or other benefits to attract and retain workers. Still others may pay overtime because of labor constraints. Growers also report that myriad agricultural regulations often require them to alter their operations and production practices, which places additional cost pressures on the farm business. Overall profitability may be impacted because of any one or a combination of these issues.

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. Because overhead costs are farm and ranch specific, costs will vary among growers.

Property Taxes. Counties charge a base property tax rate of 1 percent 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 percent of the average value of the property. Average value equals new cost plus salvage value divided by two 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 0.846 percent of the average value of the assets over their useful life. Liability insurance covers accidents on the farm and costs $940 for the entire farm.

Office Expenses. Annual office and business expenses are estimated at $750 per acre. Costs include, but are not limited to, a variety of administration and office expenses such as office supplies, telephones, bookkeeping, accounting, road maintenance, utilities, and other miscellaneous expenses.

Land Rent. Land rents in the three county area range from $450 to $3,300 per acre per year. In this study, land rent is assumed to be $2,900 per acre per year. Land rent includes developed well(s) and irrigation system. In general, growers are responsible for the portion above ground such as the pump, and the landowner is responsible for what is below ground, such as the well running dry (please also see the Irrigation System section for more information).

Food Safety and Regulatory Programs. To ensure the safety of fresh products, accommodate buyer requests, and comply with regulatory programs such as those for water and air quality, growers now have in house departments and/or staff specially dedicated to supervision and management of these programs. Part of a food safety program is participation in third party (independent) audits. Costs associated with a food safety program vary depending upon the farm and inspection circumstances, administrative costs, and personnel training and hygiene needs and are estimated at $100 per acre per year. In addition, a cost of $80 per acre per year is included for management and compliance with regulatory programs.

Field Sanitation. Sanitation services provide portable toilets and washing stations to the farm. The cost includes double toilets with washbasins, delivery and pickup, and 12 months of servicing. Costs also include soap or other suitable cleaning agent, and single-use towels. Separate potable water and single-use drinking cups are also supplied.

Farm Supervisor. The grower hires a farm supervisor to oversee some of the cultural and harvest operations as well as fill in on some of the operations where temporary assistance is needed. The estimated cost for the supervisor is $1,250 per acre. Larger operations may have multiple supervisory levels; associated costs will therefore differ.

Investment Repair. Repair costs are the annual maintenance costs for investments in non-cash overhead. For this study, annual repairs are calculated as 2 percent of the new cost, with the exception of drip system repairs, which are 5 percent of the total costs and include materials and labor.

Non-Cash Overhead Costs

Non-cash overhead, shown on an annual per acre basis, 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 ((Purchase Price – Salvage Value) x Capital Recovery Factor) + (Salvage Value x 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 and Biological Engineers (ASABE) based on equipment type and years of life. The life in years is estimated by dividing the wear out life, as given by ASABE 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 5.00 percent is used to calculate capital recovery. The rate will vary depending upon the size of the loan and other lending agency conditions, but is the basic suggested rate by a farm lending agency as of January 2017.

Tunnels. Some tunnel structure materials are used for more than one complete raspberry cropping cycle. For example, steel parts last for 10 years, while plastic coverings last for only one cycle. A total of seven 21 feet wide by 300 feet long tunnel structures are constructed per acre. Additional information about tunnels is located in the section Production Years 1 to 3: Cultural Practices and Material Inputs.

Trellis. The trellis system has a life of six years and is removed at the end of Production Year 3; it can be used in subsequent raspberry crop plantings. Additional information about the trellis system is located in the section Production Years 1 to 3: Cultural Practices and Material Inputs.

Tools. This includes shop and field tools used on the farm. The value is estimated and does not represent any specific inventory.

Shade Structure. A shade structure is set up in first year to provide shade for rest breaks and for a sorting and packing area at harvest. The cost includes the setup labor and materials. The shade structure may also be used for future crops.

Irrigation System. The irrigation system is maintained by the landowner and assumed to be included in the land rental cost. In some cases the grower may be responsible for maintenance. The grower invests in and owns sprinkler pipe and drip system materials sufficient for irrigation needs. The grower also owns a trailer and other equipment needed for moving pipe and irrigation supplies to and from the field. Irrigation water is pumped from a well and delivered to the field through an underground pipe system. Main lines above ground are connected to the underground system to deliver water for the irrigations. Additional information about the drip system is located in the section Production Years 1 to 3: Cultural Practices and Material Inputs.

Establishment. Costs to establish raspberries 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, trellis system labor, drip tape, planting, plants, cash overhead and expenses for establishing the canes. The costs cover a five month period from August to December. The Total Cash Cost on Table 1 represents the establishment cost. For this study the cost is $11,219 per acre or $471,198 for the 42-acre field.

Equipment Costs. 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 percent to indicate a mix of new and used equipment. Annual ownership costs for equipment and other investments are shown in the Whole Farm Equipment, Investment and Business Overhead Tables. Equipment costs are composed of three parts: non-cash overhead, cash overhead, and operating costs. Both 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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UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER

TABLE 1. COSTS PER ACRE to ESTABLISH, PRODUCE AND HARVEST RASPBERRIES - SUMMARY

Central Coast – 2017

	Cost Per Acre			
Year:	Establish	Prod Yr 1	Prod Yr 2	Prod Yr 3
4.5 Pound Trays:		4,750 (F)*	4,750 (S) 2,850 (F)	4,750 (S)
Land Prep/Plant Costs:				
Land Prep/Plant Costs	8,437			
TOTAL LAND PREP/PLANTING COSTS	8,437			
Cultural Costs:				
Cultural Costs		7,900	7,779	6,506
TOTAL CULTURAL COSTS		7,900	7,779	6,506
Harvest Costs:				
Harvest/Load/Haul/Cool/Sell		51,361	82,557	51,362
TOTAL HARVEST COSTS		51,361	82,557	51,362
Interest On Operating Capital @ 4.50%	86	534	1,549	419
TOTAL OPERATING COSTS/ACRE	8,523	59,795	91,885	58,287
Cash Overhead Costs:				
Land Rent, Insurance, Taxes	2,697	5,978	5,983	3,415
TOTAL CASH OVERHEAD COSTS	2,697	5,978	5,983	3,415
TOTAL CASH COSTS/ACRE	11,219	65,773	97,869	61,702
INCOME/ACRE FROM PRODUCTION		71,250	114,000	71,250
NET CASH COSTS/ACRE FOR THE YEAR	**11,219**			
NET RETURNS/ACRE ABOVE CASH COSTS		5,477	16,131	9,548
ACCUMULATED NET CASH COSTS/ACRE	11,219	5,742		
Non-Cash Overhead (Capital Recovery Cost):				
Investments/Equipment	413	5,190	5,308	5,185
TOTAL NON-CASH OVERHEAD COST/ACRE	413	5,190	5,308	5,185
TOTAL COST/ACRE FOR THE YEAR	11,633	70,963	103,177	66,887
INCOME/ACRE FROM PRODUCTION		71,250	114,000	71,250
TOTAL NET COST/ACRE FOR THE YEAR	11,633			
NET RETURNS/ACRE ABOVE TOTAL COST		287	10,823	4,363
TOTAL ACCUMULATED NET/ACRE	-11,633	-11,346	-523	3,840

* F = Fall Crop; S = Spring Crop

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER
TABLE 2. COSTS PER ACRE TO ESTABLISH RASPBERRIES
Central Coast - 2017

Operation	Operation Time (Hrs/A)	Cash and Labor Costs per Acre: Labor Cost	Fuel	Lube & Repairs	Material Cost	Custom/ Rent	Total Cost	Your Cost
Land Prep/Planting:								
Soil Samples (2 per 42 Ac)	0.07	2	0	0	0	4	6	
Rip 3X (3 ft deep)	1.45	38	38	17	0	0	93	
Disk & Ringroll 3X	0.52	13	6	4	0	0	23	
Landplane 2X	0.37	10	10	4	0	0	24	
Compost Application (Greenwaste)	0.34	9	4	3	246	0	262	
Disk 1X	0.17	4	2	1	0	0	8	
Chisel 1X	0.19	5	5	2	0	0	12	
Fumigate - Flat - TIF Tarped	0.00	0	0	0	0	4,000	4,000	
Fumigation Permit	0.00	0	0	0	0	25	25	
Tarp Retrieval/Disposal	0.00	0	0	0	0	100	100	
Disk 1X	0.17	4	2	1	0	0	8	
Rototill 1X	0.32	8	4	2	0	0	14	
List Beds	0.15	4	4	1	0	0	9	
Fertilize (Preplant 18-8-13)	0.24	6	2	2	255	0	265	
Shape beds	0.15	4	4	1	0	0	9	
Plant Raspberries	28.00	451	0	0	2,860	0	3,311	
Sprinkler Irrigate & Setup	4.00	74	9	4	90	0	177	
ATV	0.38	10	1	0	0	0	11	
Pickup Truck	2.33	61	15	5	0	0	81	
TOTAL LAND PREP/PLANTING COSTS	38.85	703	105	48	3,451	4,129	8,437	
Interest on Operating Capital at 4.50%							86	
TOTAL OPERATING COSTS/ACRE		703	105	48	3,451	4,129	8,523	
CASH OVERHEAD:								
Land Rent							1,450	
Liability Insurance							14	
Office Expense							375	
Field Sanitation							22	
Farm Supervisor							625	
Regulatory Programs							40	
Food Safety							50	
Property Taxes							29	
Property Insurance							2	
Investment Repairs							89	
TOTAL CASH OVERHEAD COSTS/ACRE							2,697	
TOTAL CASH COSTS/ACRE							11,219	
NON-CASH OVERHEAD:		Per Producing Acre		Annual Cost Capital Recovery				
Pump and Well		3,571		252			252	
Shop Tools		310		28			28	
Sprinkler Pipe		560		36			36	
Equipment		853		97			97	
TOTAL NON-CASH OVERHEAD COSTS		5,294		413			413	
TOTAL COSTS/ACRE							11,633	

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER

TABLE 3. MATERIAL INPUT COSTS PER ACRE TO ESTABLISH RASPBERRIES

Central Coast – 2017

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
OPERATING COSTS					
Fertilizer:				**501**	
Greenwaste Compost	6.00	ton	41.00	246	
18-8-13	300.00	lb	0.85	255	
Water:				**90**	
Pumped	4.00	acin	22.50	90	
Custom:				**4,129**	
Soil Analysis	0.05	each	75.00	4	
Fumigate – Flat Tarped	1.00	acre	4000.00	4,000	
Fumigation Permit	1.00	acre	25.00	25	
Plastic Removal	1.00	acre	100.00	100	
Plants/Seeds:				**2,860**	
Raspberry Plants	260.00	lb	11.00	2,860	
Labor				**703**	
Equipment Operator Labor	9.42	hrs	21.70	204	
Non-Machine Labor	27.00	hrs	16.10	499	
Machinery				**153**	
Fuel-Gas	4.96	gal	3.25	16	
Fuel-Diesel	30.49	gal	2.92	89	
Lube				16	
Machinery Repair				33	
Interest on Operating Capital @ 4.50%				86	
TOTAL OPERATING COSTS/ACRE				8,523	
TOTAL OPERATING COSTS/				0	
NET RETURNS ABOVE OPERATING COSTS				-8,523	
CASH OVERHEAD COSTS					
Land Rent				1,450	
Liability Insurance				14	
Office Expense				375	
Field Sanitation				22	
Farm Supervisor				625	
Regulatory Programs				40	
Food Safety				50	
Property Taxes				29	
Property Insurance				2	
Investment Repairs				89	
TOTAL CASH OVERHEAD COSTS/ACRE				2,697	
TOTAL CASH OVERHEAD COSTS/				0	
TOTAL CASH COSTS/ACRE				11,219	
TOTAL CASH COSTS/				0	
NET RETURNS ABOVE CASH COSTS				-11,219	
NON-CASH OVERHEAD COSTS (Capital Recovery)					
Pump and Well				252	
Shop Tools				28	
Sprinkler Pipe				36	
Equipment				97	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				413	
TOTAL NON-CASH OVERHEAD COSTS/				0	
TOTAL COST/ACRE				11,633	
TOTAL COST/				0	
NET RETURNS ABOVE TOTAL COST				-11,633	

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER

TABLE 4a. COSTS PER ACRE TO PRODUCE AND HARVEST RASPBERRIES: PRODUCTION YEAR 1

Central Coast – 2017

Operations	Operation Time (Hrs/A)	Cash and Labor Costs per Acre						
		Labor Cost	Fuel	Lube & Repairs	Material Cost	Custom/ Rent	Total Cost	Your Cost
Cultural:								
Hand weed	0.00	0	0	0	0	300	300	
Weeds- Disc Row Middles	0.69	18	2	1	0	0	21	
Install Trellis	42.00	686	9	4	0	0	698	
Install Drip System	20.52	336	5	2	420	0	762	
Drip Irrigate	0.00	52	0	0	495	0	547	
Fertilize (CN9, CAN17, 21-0-0-24)	0.00	14	0	0	128	0	142	
Isomate Phermones- LBAM	1.00	16	0	0	165	0	181	
Predatory Mites - Persimilis	1.00	16	0	0	520	0	536	
Train Canes	70.00	1,127	0	0	0	0	1,127	
Disease, Insect & Mite Management	2.61	68	23	13	483	0	587	
Construct Tunnels	100.00	1,610	0	0	0	0	1,610	
Tunnel Management	50.00	805	0	0	0	0	805	
Pollination - 2 Hives/Ac	0.00	0	0	0	0	220	220	
Soil Test 2/42 Ac	0.00	0	0	0	0	4	4	
Leaf Analysis 3/42 Ac	0.00	0	0	0	0	5	5	
Fertilize (20-20-20, 10-30-30)	0.00	4	0	0	132	0	136	
PCA	0.00	0	0	0	0	125	125	
ATV	0.38	10	1	0	0	0	11	
Pickup	2.33	61	15	7	0	0	83	
TOTAL CULTURAL COSTS	290.53	4,821	54	27	2,344	654	7,900	
Harvest:								
Harvest Raspberries	0.00	1,610	0	0	8,218	30,875	40,703	
Load/Haul	23.43	610	228	83	0	0	921	
Cool	0.00	0	0	0	0	4,038	4,038	
Market/Sales Fee	0.00	0	0	0	0	5,700	5,700	
TOTAL HARVEST COSTS	23.43	2,220	228	83	8,218	40,613	51,361	
Interest on Operating Capital at 4.50%							534	
TOTAL OPERATING COSTS/ACRE		7,042	282	109	10,562	41,267	59,795	

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER

TABLE 4a. CONTINUED

Central Coast – 2017

Operation	Operation Time (Hrs/A)	Cash and Labor Costs per Acre: Labor Cost	Fuel	Lube & Repair	Material Cost	Custom/ Rent	Total Cost	Your Cost
CASH OVERHEAD:								
Land Rent							2,900	
Liability Insurance							21	
Office Expense							750	
Field Sanitation							44	
Food Safety							100	
Regulatory Programs							80	
Farm Supervisor							1,250	
Property Taxes							177	
Property Insurance							15	
Investment Repairs							641	
TOTAL CASH OVERHEAD COSTS/ACRE							5,978	
TOTAL CASH COSTS/ACRE							65,773	
NON-CASH OVERHEAD:		Per Producing Acre		Annual Cost Capital Recovery				
Shop/Hand Tools		310		28			28	
Tunnel Plastic Sheeting		4,969		1,825			1,825	
Tunnel Metal Support Materials		19,634		2,433			2,433	
Irrigation System		1,400		97			97	
Pump and Well		3,571		252			252	
Trellis Materials		1,875		350			350	
Sort Pack Trailer		238		30			30	
Shade Structure		50		6			6	
Equipment		1,181		169			169	
TOTAL NON-CASH OVERHEAD COSTS		30,608		5,006			5,190	
TOTAL COSTS/ACRE							70,963	

*Growing Costs (Total Costs – Harvest Costs): $70,963 - $51,361 = $19,602

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER

TABLE 4b. COSTS AND RETURNS PER ACRE TO PRODUCE AND HARVEST RASPBERRIES: PRODUCTION YEAR 1

Cental Coast - 2017

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
4.5 lb tray	4,750	each	15.00	71,250	
TOTAL GROSS RETURNS	4,750	each		71,250	
OPERATING COSTS					
Fungicide:				**188**	
Rally	3.00	oz	3.85	12	
Switch	14.00	oz	5.89	82	
Pristine	23.00	oz	4.08	94	
Insecticide/Miticide:				**981**	
Isomate Pheromones (300 lures per acre)	1.00	acre	165.00	165	
Persimilis	80.00	thousand	6.50	520	
Dipel	3.00	lb	16.51	50	
Mustang	12.90	floz	2.25	29	
Savey 50WP	6.00	oz	20.69	124	
Malathion 5EC	3.00	pint	4.33	13	
Acramite	1.00	lb	79.95	80	
Fertilizer:				**261**	
CN9	21.00	gal	1.95	41	
CAN17	28.00	gal	1.90	53	
Ammonium Sulfate (21-0-0-24)	105.00	lb	0.32	34	
20-20-20	80.00	lb	1.10	88	
10-30-30	32.00	lb	1.40	45	
Water:				**915**	
Drip Tape	6000.00	foot	0.07	420	
Water-Pumped	22.00	acin	22.50	495	
Custom:				**41,267**	
Weed	3.00	acre	100.00	300	
Bee Hives	2.00	each	110.00	220	
Soil Analysis	0.05	each	75.00	4	
Leaf Analysis	0.07	each	75.00	5	
PCA	1.00	acre	125.00	125	
Piece Rate	4750.00	each	6.50	30,875	
Cool	4750.00	each	0.85	4,038	
Market/Sales Fee	4750.00	each	1.20	5,700	
Harvest:				**8,218**	
Clamshell	4750.00	each	1.73	8,218	
Labor				**7,042**	
Equipment Operator Labor	37.16	hrs	21.70	806	
Non-Machine Labor	387.28	hrs	16.10	6,235	
Machinery				**392**	
Fuel-Gas	75.21	gal	3.25	244	
Fuel-Diesel	12.95	gal	2.92	38	
Lube				42	
Machinery Repair				67	
Interest on Operating Capital @ 4.50%				534	
TOTAL OPERATING COSTS/ACRE				59,795	
TOTAL OPERATING COSTS/EACH				13	
NET RETURNS ABOVE OPERATING COSTS				11,455	

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER

TABLE 4b. CONTINUED

Central Coast – 2017

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
CASH OVERHEAD COSTS					
Land Rent				2,900	
Liability Insurance				21	
Office Expense				750	
Field Sanitation				44	
Food Safety				100	
Regulatory Programs				80	
Farm Supervisor				1,250	
Property Taxes				177	
Property Insurance				15	
Investment Repairs				641	
TOTAL CASH OVERHEAD COSTS/ACRE				5,978	
TOTAL CASH OVERHEAD COSTS/EACH				1	
TOTAL CASH COSTS/ACRE				65,773	
TOTAL CASH COSTS/EACH				14	
NET RETURNS ABOVE CASH COSTS				5,477	
NON-CASH OVERHEAD COSTS (Capital Recovery)					
Shop/Hand Tools				28	
Tunnel Plastic Sheeting				1,825	
Tunnel Metal Support Materials				2,433	
Irrigation System				97	
Pump and Well				252	
Trellis Materials				350	
Sort/Pack Trailer				30	
Shade Structure				6	
Equipment				169	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				5,190	
TOTAL NON-CASH OVERHEAD COSTS/EACH				1	
TOTAL COST/ACRE				70,963	
TOTAL COST/EACH				15	
NET RETURNS ABOVE TOTAL COST				287	

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER

TABLE 4c. MONTHLY CASH COSTS PER ACRE TO PRODUCE AND HARVEST RASBBERRIES: PRODUCTION YEAR 1

Central Coast – 2017

	JAN 15	FEB 15	MAR 15	APR 15	MAY 15	JUN 15	JUL 15	AUG 15	SEP 15	OCT 15	Total
Cultural:											
Hand weed	100	100	100								300
Weeds- Disc Row Middles		10	10								21
Install Trellis			698								698
Install Drip System			762								762
Drip Irrigate			51	74	74	74	74	74	74	51	547
Fertilize (CN9, CAN17, 21-0-0-24)			20	40	20	40	20				142
Isomate Phermones- LBAM			181								181
Predatory Mites - Persimilis			536								536
Train Canes				564	563						1,127
Disease, Insect & Mite Management							58	405	125		587
Construct Tunnels							1,610				1,610
Tunnel Management							805				805
Pollination - 2 Hives/Ac							220				220
Soil Test 2/42 Ac							4				4
Leaf Analysis 3/42 Ac								5			5
Fertilize (20-20-20, 10-30-30)								68	68		136
PCA	13	13	13	13	13	13	13	13	13	13	125
ATV	1	1	1	1	1	1	1	1	1	1	11
Pickup	8	8	8	8	8	8	8	8	8	8	83
TOTAL CULTURAL COSTS	122	132	2,382	701	679	136	2,813	574	289	73	7,900
Harvest:											
Harvest Raspberries								13,564	13,574	13,564	40,703
Load/Haul								307	307	307	921
Cool								1,346	1,346	1,346	4,038
Market/Sales Fee										5,700	5,700
TOTAL HARVEST COSTS	0	0	0	0	0	0	0	15,217	15,228	20,916	51,361
Interest on Operating Capital @ 4.50%	0	1	11	13	15	16	26	85	144	222	534
TOTAL OPERATING COSTS/ACRE	122	133	2,393	714	694	152	2,839	15,877	15,660	21,212	59,795
CASH OVERHEAD											
Land Rent									2,900		2,900
Liability Insurance									21		21
Office Expense	75	75	75	75	75	75	75	75	75	75	750
Field Sanitation	4	4	4	4	4	4	4	4	4	4	44
Food Safety									100		100
Regulatory Programs									80		80
Farm Supervisor	125	125	125	125	125	125	125	125	125	125	1,250
Property Taxes		88					88				177
Property Insurance		7					7				15
Investment Repairs	64	64	64	64	64	64	64	64	64	64	641
TOTAL CASH OVERHEAD COSTS	269	364	269	269	269	269	364	269	3,369	269	5,978
TOTAL CASH COSTS/ACRE	391	498	2,662	983	963	420	3,203	16,145	19,030	21,481	65,773

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER

TABLE 4d. RANGING ANALYSIS: PRODUCTION YEAR 1

Central Coast - 2017

COSTS PER ACRE AND PER TRAY AT VARYING YIELDS TO PRODUCE RASPBERRIES

Production Year 1 – Fall Crop	YIELD (TRAY)						
	3,500	3,900	4,300	4,750	5,200	5,600	6,000
OPERATING COSTS/ACRE:							
Cultural	7,900	7,900	7,900	7,900	7,900	7,900	7,900
Harvest	38,088	42,335	46,583	51,361	56,140	60,387	64,635
Interest on Operating Capital @ 4.50%	440	470	500	534	568	598	628
TOTAL OPERATING COSTS/ACRE	46,427	50,705	54,983	59,795	64,607	68,885	73,163
TOTAL OPERATING COSTS/TRAY	13.26	13.00	12.79	12.59	12.42	12.30	12.19
CASH OVERHEAD COSTS/ACRE	5,978	5,978	5,978	5,978	5,978	5,978	5,978
TOTAL CASH COSTS/ACRE	52,405	56,683	60,961	65,773	70,585	74,863	79,140
TOTAL CASH COSTS/TRAY	14.97	14.53	14.18	13.85	13.57	13.37	13.19
NON-CASH OVERHEAD COSTS/ACRE	5,190	5,190	5,190	5,190	5,190	5,190	5,190
TOTAL COSTS/ACRE	57,595	61,873	66,151	70,963	75,775	80,053	84,330
TOTAL COSTS/TRAY	16.00	16.00	15.00	15.00	15.00	14.00	14.00

Net Return per Acre above Operating Costs for Raspberries

PRICE ($/each)	YIELD (tray/acre)						
4.5 Lb. Tray	3,500	3,900	4,300	4,750	5,200	5,600	6,000
10.00	-11,427	-11,705	-11,983	-12,295	-12,607	-12,885	-13,163
11.00	-7,927	-7,805	-7,683	-7,545	-7,407	-7,285	-7,163
13.00	-927	-5	917	1,955	2,993	3,915	4,837
15.00	6,073	7,795	9,517	11,455	13,393	15,115	16,837
17.00	13,073	15,595	18,117	20,955	23,793	26,315	28,837
19.00	20,073	23,395	26,717	30,455	34,193	37,515	40,837
22.00	30,573	35,095	39,617	44,705	49,793	54,315	58,837

Net Return per Acre above Cash Costs for Raspberries

PRICE ($/each)	YIELD (tray/acre)						
4.5 Lb. Tray	3,500	3,900	4,300	4,750	5,200	5,600	6,000
10.00	-17,405	-17,683	-17,961	-18,273	-18,585	-18,863	-19,140
11.00	-13,905	-13,783	-13,661	-13,523	-13,385	-13,263	-13,140
13.00	-6,905	-5,983	-5,061	-4,023	-2,985	-2,063	-1,140
15.00	95	1,817	3,539	5,477	7,415	9,137	10,860
17.00	7,095	9,617	12,139	14,977	17,815	20,337	22,860
19.00	14,095	17,417	20,739	24,477	28,215	31,537	34,860
22.00	24,595	29,117	33,639	38,727	43,815	48,337	52,860

Net Return per Acre above Total Costs for Raspberries

PRICE ($/each)	YIELD (tray/acre)						
4.5 Lb. Tray	3,500	3,900	4,300	4,750	5,200	5,600	6,000
10.00	-22,595	-22,873	-23,151	-23,463	-23,775	-24,053	-24,330
11.00	-19,095	-18,973	-18,851	-18,713	-18,575	-18,453	-18,330
13.00	-12,095	-11,173	-10,251	-9,213	-8,175	-7,253	-6,330
15.00	-5,095	-3,373	-1,651	287	2,225	3,947	5,670
17.00	1,905	4,427	6,949	9,787	12,625	15,147	17,670
19.00	8,905	12,227	15,549	19,287	23,025	26,347	29,670
22.00	19,405	23,927	28,449	33,537	38,625	43,147	47,670

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER

TABLE 5a. COSTS PER ACRE TO PRODUCE AND HARVEST RASPBERRIES: PRODUCTION YEAR 2

Central Coast - 2017

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:								
Hand Prune & Train Canes	160.00	2,576	0	0	0	0	2,576	
Hand weed	0.00	0	0	0	0	300	300	
Primocane Suppression (Shark)	0.65	17	6	3	36	0	62	
Shred Prunings	0.21	5	1	1	0	0	7	
Fertilize (CN9, CAN17, 21-0-0-24)	0.00	14	0	0	128	0	141	
Soil Test 2/42 Ac	0.00	0	0	0	0	4	4	
Drip Irrigate	0.00	45	0	0	810	0	855	
Disease, Insect & Mite Management	3.27	85	28	16	576	0	706	
Tunnel Management	50.00	805	0	0	0	0	805	
Weeds- Disc Row Middles	0.34	9	1	0	0	0	10	
Isomate Phermones- LBAM	1.00	16	0	0	165	0	181	
Predatory Mites - Persimilis	1.00	16	0	0	520	0	536	
Pollination - 2 Hives/Ac (2 Crops)	0.00	0	0	0	0	440	440	
Fertilize (20-20-20, 10-30-30)	0.00	8	0	0	266	0	273	
Hand Clip Canes	35.00	564	0	0	0	0	564	
Leaf Analysis 3/42 Ac	0.00	0	0	0	0	5	5	
PCA	0.00	0	0	0	0	125	125	
ATV	0.75	20	2	1	0	0	22	
Pickup	4.67	122	30	14	0	0	166	
TOTAL CULTURAL COSTS	256.89	4,301	68	36	2,501	874	7,779	
Harvest:								
Harvest Raspberries	0.00	2,818	0	0	13,148	49,400	65,366	
Load/Haul	41.00	1,068	400	145	0	0	1,612	
Cool	0.00	0	0	0	0	6,460	6,460	
Market/Sales Fee	0.00	0	0	0	0	9,120	9,120	
TOTAL HARVEST COSTS	41.00	3,885	400	145	13,148	64,980	82,557	
Interest on Operating Capital at 4.50%							1,549	
TOTAL OPERATING COSTS/ACRE		8,186	467	180	15,649	65,854	91,885	

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER

TABLE 5a. CONTINUED

Central Coast - 2017

Operation	Operation Time (Hrs/A)	Cash and Labor Costs per Acre: Labor Cost	Fuel	Lube & Repairs	Material Cost	Custom/ Rent	Total Cost	Your Cost
CASH OVERHEAD:								
Land Rent							2,900	
Liability Insurance							21	
Office Expense							750	
Field Sanitation							44	
Food Safety							100	
Regulatory Programs							80	
Farm Supervisor							1,250	
Property Taxes							182	
Property Insurance							15	
Investment Repairs							641	
TOTAL CASH OVERHEAD COSTS/ACRE							5,983	
TOTAL CASH COSTS/ACRE							97,869	
NON-CASH OVERHEAD:		Per Producing Acre		Annual Cost Capital Recovery				
Irrigation System		1,400		97			97	
Pump and Well		3,571		252			252	
Shop/Hand Tools		310		28			28	
Tunnel Metal Support Materials		19,634		2,433			2,433	
Tunnel Plastic Sheeting		4,969		1,825			1,825	
Trellis Materials		1,875		350			350	
Sort/Pack Trailer		238		30			30	
Shade Structure		50		6			6	
Equipment		1,964		287			287	
TOTAL NON-CASH OVERHEAD COSTS		34,011		5,308			5,308	
TOTAL COSTS/ACRE							103,177	

*Growing Costs (Total Costs – Harvest Costs): $103,177 - $82,557 = $20,620

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER

TABLE 5b. COSTS AND RETURNS PER ACRE TO PRODUCE AND HARVEST RASPBERRIES: PRODUCTION YEAR 2

Central Coast – 2017

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
4.5 lb tray	7,600	each	15.00	114,000	
TOTAL GROSS RETURNS	7,600	each		114,000	
OPERATING COSTS					
Herbicide:				**36**	
Shark EW	3.66	floz	9.92	36	
Fungicide:				**188**	
Switch	14.00	oz	5.89	82	
Rally	3.00	oz	3.85	12	
Pristine	23.00	oz	4.08	94	
Insecticide/Miticide:				**1,074**	
Dipel	4.00	lb	16.51	66	
Delegate	6.00	oz	10.58	63	
Malathion 5EC	6.00	pint	4.33	26	
Isomate Pheromones (300 lures per acre)	1.00	acre	165.00	165	
Persimilis	80.00	thousand	6.50	520	
Mustang	12.90	floz	2.25	29	
Savey 50WP	6.00	oz	20.69	124	
Acramite	1.00	lb	79.95	80	
Fertilizer:				**393**	
CN9	21.00	gal	1.95	41	
CAN17	28.00	gal	1.90	53	
Ammonium Sulfate	105.00	lb	0.32	34	
20-20-20	160.00	lb	1.10	176	
10-30-30	64.00	lb	1.40	90	
Water:				**810**	
Water-Pumped	36.00	acin	22.50	810	
Custom:				**65,854**	
Weed	3.00	acre	100.00	300	
Soil Analysis	0.05	each	75.00	4	
Bee Hives	4.00	each	110.00	440	
Leaf Analysis	0.07	each	75.00	5	
Piece Rate	7600.00	each	6.50	49,400	
Cooler	7600.00	each	0.85	6,460	
Market/Sales Fee	7600.00	each	1.20	9,120	
PCA	1.00	acre	125.00	125	
Harvest:				**13,148**	
Clamshell	7600.00	each	1.73	13,148	
Labor				**8,186**	
Equipment Operator Labor	61.07	hrs	21.70	1,325	
Non-Machine Labor	425.88	hrs	16.10	6,861	
Machinery				**648**	
Fuel-Gas	132.83	gal	3.25	432	
Fuel-Diesel	12.19	gal	2.92	36	
Lube				70	
Machinery Repair				110	
Interest on Operating Capital @ 4.50%				1,549	
TOTAL OPERATING COSTS/ACRE				91,885	
TOTAL OPERATING COSTS/EACH				12	
NET RETURNS ABOVE OPERATING COSTS				22,115	

*Represents 2 crops: Spring Crop = 4,750 trays/acre; Fall Crop = 2,850 trays/acre

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER

TABLE 5b. CONTINUED

Central Coast - 2017

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
CASH OVERHEAD COSTS					
Land Rent				2,900	
Liability Insurance				21	
Office Expense				750	
Field Sanitation				44	
Food Safety				100	
Regulatory Programs				80	
Farm Supervisor				1,250	
Property Taxes				182	
Property Insurance				15	
Investment Repairs				641	
TOTAL CASH OVERHEAD COSTS/ACRE				5,983	
TOTAL CASH OVERHEAD COSTS/EACH				1	
TOTAL CASH COSTS/ACRE				97,869	
TOTAL CASH COSTS/EACH				13	
NET RETURNS ABOVE CASH COSTS				16,131	
NON-CASH OVERHEAD COSTS (Capital Recovery)					
Irrigation System				97	
Pump and Well				252	
Shop/Hand Tools				28	
Tunnel Metal Support Materials				2,433	
Tunnel Plastic Sheeting				1,825	
Trellis Materials				350	
Sort/Pack Trailer				30	
Shade Structure				6	
Equipment				287	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				5,308	
TOTAL NON-CASH OVERHEAD COSTS/EACH				1	
TOTAL COST/ACRE				103,177	
TOTAL COST/EACH				14	
NET RETURNS ABOVE TOTAL COST				10,823	

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER

TABLE 5c. MONTHLY CASH COSTS PER ACRE TO PRODUCE AND HARVEST RASPBERRIES: PRODUCTION YEAR 2

Central Coast - 2017

	JAN 16	FEB 16	MAR 16	APR 16	MAY 16	JUN 16	JUL 16	AUG 16	SEP 16	OCT 16	Total
Cultural:											
Hand Prune & Train Canes	1,288					1,288					2,576
Hand weed	100	100	100								300
Primocane Suppression (Shark)		62									62
Shred Prunings + Disc Row Middles			17								17
Fertilize (CN9, CAN17, 21-0-0-24)		20	40	40			40				141
Soil Test 2/42 Ac			4								4
Drip Irrigate			96	96	119	119	119	113	96	96	855
Disease, Insect & Mite Management					119		58	405	125		706
Tunnel Management			805								805
Isomate Phermones- LBAM			181								181
Predatory Mites - Persimilis			536								536
Pollination - 2 Hives/Ac 2 Crops			220				220				440
Fertilize (20-20-20, 10-30-30)					68	68		68	68		273
Hand Clip Canes				564							564
Leaf Analysis 3/42 Ac					5						5
PCA	13	13	13	13	13	13	13	13	13	13	125
ATV	2	2	2	2	2	2	2	2	2	2	22
Pickup	17	17	17	17	17	17	17	17	17	17	166
TOTAL CULTURAL COSTS	1,419	214	2,031	732	343	1,507	469	617	321	128	7,779
Harvest:											
Harvest Raspberries				13,564	13,574	13,564		8,221	8,221	8,221	65,366
Load/Haul				307	307	307		230	230	230	1,612
Cool				1,346	1,346	1,346		808	808	808	6,460
Market/Sales Fee						5,700				3,420	9,120
TOTAL HARVEST COSTS	0	0	0	15,217	15,228	20,917	0	9,259	9,259	12,679	82,557
Interest on Operating Capital @ 4.50%	5	6	14	74	132	216	218	255	291	339	1,549
TOTAL OPERATING COSTS/ACRE	1,425	220	2,045	16,022	15,702	22,640	686	10,130	9,870	13,145	91,885
CASH OVERHEAD											
Land Rent											2,900
Liability Insurance											21
Office Expense	75	75	75	75	75	75	75	75	75	75	750
Field Sanitation	4	4	4	4	4	4	4	4	4	4	44
Food Safety									100		100
Regulatory Programs									80		80
Farm Supervisor	125	125	125	125	125	125	125	125	125	125	1,250
Property Taxes		91					91				182
Property Insurance		8					8				15
Investment Repairs	64	64	64	64	64	64	64	64	64	64	641
TOTAL CASH OVERHEAD COSTS	269	367	269	269	269	269	367	269	449	269	5,983
TOTAL CASH COSTS/ACRE	1,693	587	2,314	16,291	15,971	22,908	1,054	10,399	10,319	13,414	97,869

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER

TABLE 5d. RANGING ANALYSIS: PRODUCTION YEAR 2

Central Coast - 2017

COSTS PER ACRE AND PER EACH AT VARYING YIELDS TO PRODUCE RASPBERRIES

	YIELD (TRAY)						
	5,600	6,240	6,880	7,600	8,320	8,960	9,600
OPERATING COSTS/ACRE:							
Cultural	7,779	7,779	7,779	7,779	7,779	7,779	7,779
Harvest	62,156	68,685	75,213	82,557	89,902	96,430	102,959
Interest on Operating Capital @ 4.50%	1,202	1,313	1,424	1,549	1,674	1,784	1,895
TOTAL OPERATING COSTS/ACRE	71,138	77,777	84,416	91,885	99,355	105,994	112,633
TOTAL OPERATING COSTS/TRAY	12.70	12.46	12.27	12.09	11.94	11.83	11.73
CASH OVERHEAD COSTS/ACRE	5,983	5,983	5,983	5,983	5,983	5,983	5,983
TOTAL CASH COSTS/ACRE	77,121	83,761	90,400	97,869	105,338	111,977	118,617
TOTAL CASH COSTS/TRAY	13.77	13.42	13.14	12.88	12.66	12.50	12.36
NON-CASH OVERHEAD COSTS/ACRE	5,308	5,308	5,308	5,308	5,308	5,308	5,308
TOTAL COSTS/ACRE	82,429	89,068	95,708	103,177	110,646	117,285	123,925
TOTAL COSTS/TRAY	15.00	14.00	14.00	14.00	13.00	13.00	13.00

Net Return per Acre above Operating Costs for Raspberries

PRICE ($/each)	YIELD (tray/acre)						
4.5 Lb. Tray	5,600	6,240	6,880	7,600	8,320	8,960	9,600
10.00	-15,138	-15,377	-15,616	-15,885	-16,155	-16,394	-16,633
11.00	-9,538	-9,137	-8,736	-8,285	-7,835	-7,434	-7,033
13.00	1,662	3,343	5,024	6,915	8,805	10,486	12,167
15.00	12,862	15,823	18,784	22,115	25,445	28,406	31,367
17.00	24,062	28,303	32,544	37,315	42,085	46,326	50,567
19.00	35,262	40,783	46,304	52,515	58,725	64,246	69,767
22.00	52,062	59,503	66,944	75,315	83,685	91,126	98,567

Net Return per Acre above Cash Costs for Raspberries

PRICE ($/each)	YIELD (tray/acre)						
4.5 Lb. Tray	5,600	6,240	6,880	7,600	8,320	8,960	9,600
10.00	-21,121	-21,361	-21,600	-21,869	-22,138	-22,377	-22,617
11.00	-15,521	-15,121	-14,720	-14,269	-13,818	-13,417	-13,017
13.00	-4,321	-2,641	-960	931	2,822	4,503	6,183
15.00	6,879	9,839	12,800	16,131	19,462	22,423	25,383
17.00	18,079	22,319	26,560	31,331	36,102	40,343	44,583
19.00	29,279	34,799	40,320	46,531	52,742	58,263	63,783
22.00	46,079	53,519	60,960	69,331	77,702	85,143	92,583

Net Return per Acre above Total Costs for Raspberries

PRICE ($/each)	YIELD (tray/acre)						
4.5 Lb. Tray	5,600	6,240	6,880	7,600	8,320	8,960	9,600
10.00	-26,429	-26,668	-26,908	-27,177	-27,446	-27,685	-27,925
11.00	-20,829	-20,428	-20,028	-19,577	-19,126	-18,725	-18,325
13.00	-9,629	-7,948	-6,268	-4,377	-2,486	-805	875
15.00	1,571	4,532	7,492	10,823	14,154	17,115	20,075
17.00	12,771	17,012	21,252	26,023	30,794	35,035	39,275
19.00	23,971	29,492	35,012	41,223	47,434	52,955	58,475
22.00	40,771	48,212	55,652	64,023	72,394	79,835	87,275

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER

TABLE 6a. COSTS PER ACRE TO PRODUCE AND HARVEST RASPBERRIES: PRODUCTION YEAR 3

Central Coast – 2017

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:								
Hand Prune & Train Canes	70.00	1,127	0	0	0	0	1,127	
Hand weed	0.00	0	0	0	0	150	150	
Primocane Suppression (Shark)	0.65	17	6	3	36	0	62	
Shred Prunings	0.21	5	1	1	0	0	7	
Fertilize (CN9, CAN17, 21-0-0-24)	0.00	10	0	0	91	0	101	
Soil Test 2/42 Ac	0.00	0	0	0	0	4	4	
Drip Irrigate	0.00	32	0	0	270	0	302	
Tunnel Management	25.00	403	0	0	0	0	403	
Weeds- Disc Mow Middles	0.34	9	1	0	0	0	10	
Isomate Phermones- LBAM	1.00	16	0	0	165	0	181	
Predatory Mites - Persimilis	1.00	16	0	0	520	0	536	
Pollination - 2 Hives/Ac	0.00	0	0	0	0	220	220	
Fertilize (20-20-20, 10-30-30)	0.00	4	0	0	133	0	137	
Hand Clip Canes	35.00	564	0	0	0	0	564	
Disease, Insect & Mite Management	0.65	17	6	3	175	0	201	
Leaf Analysis 3/42 Ac	0.00	0	0	0	0	5	5	
Tunnel/Trellis: Remove	125.00	2,013	0	0	0	0	2,013	
Postharvest Cleanup	18.15	294	4	2	0	0	300	
PCA	0.00	0	0	0	0	63	63	
ATV	0.50	13	1	0	0	0	15	
Pickup	3.00	78	20	9	0	0	107	
TOTAL CULTURAL COSTS	280.52	4,617	38	19	1,391	442	6,506	
Harvest:								
Harvest Raspberries	0.00	1,610	0	0	8,218	30,875	40,703	
Load/Haul	23.45	611	229	83	0	0	922	
Cool	0.00	0	0	0	0	4,038	4,038	
Market/Sales Fee	0.00	0	0	0	0	5,700	5,700	
TOTAL HARVEST COSTS	23.45	2,221	229	83	8,218	40,613	51,362	
Interest on Operating Capital at 4.50%							419	
TOTAL OPERATING COSTS/ACRE		6,837	266	102	9,608	41,055	58,287	

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER
TABLE 6a. CONTINUED
Central Coast – 2017

Operation	Operation Time (Hrs/A)	Cash and Labor Costs per Acre: Labor Cost	Fuel	Lube & Repairs	Material Cost	Custom/ Rent	Total Cost	Your Cost
CASH OVERHEAD:								
Land Rent							1,450	
Liability Insurance							21	
Office Expense							375	
Field Sanitation							22	
Food Safety							50	
Regulatory Programs							40	
Farm Supervisor							625	
Property Taxes							176	
Property Insurance							15	
Investment Repairs							641	
TOTAL CASH OVERHEAD COSTS/ACRE							3,415	
TOTAL CASH COSTS/ACRE							61,702	
NON-CASH OVERHEAD:		Per Producing Acre		Annual Cost Capital Recovery				
Irrigation System		1,400		97			97	
Pump and Well		3,571		252			252	
Shop/Hand Tools		310		28			28	
Tunnel Metal Support Materials		19,634		2,433			2,433	
Tunnel Plastic Sheeting		4,969		1,825			1,825	
Trellis Materials		1,875		350			350	
Sort/ Pack Trailer		238		30			30	
Shade Structure		50		6			6	
Equipment		1,123		164			164	
TOTAL NON-CASH OVERHEAD COSTS		33,170		5,185			5,185	
TOTAL COSTS/ACRE							66,887	

*Growing Costs (Total Costs – Harvest Costs): $66,932 - $51,362 = $15,570

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER

TABLE 6b. COSTS AND RETURNS PER ACRE TO PRODUCE AND HARVEST RASPBERRIES: PRODUCTION YEAR 3

Central Coast – 2017

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
GROSS RETURNS					
4.5 lb tray	4,750	each	15.00	71,250	
TOTAL GROSS RETURNS	4,750	each		71,250	
OPERATING COSTS					
Herbicide:				**36**	
Shark EW	3.66	floz	9.92	36	
Fungicide:				**82**	
Switch	14.00	oz	5.89	82	
Insecticide:				**778**	
Isomate Pheromones (300 lures per acre)	1.00	acre	165.00	165	
Persimilis	80.00	thousand	6.50	520	
Dipel	1.00	lb	16.51	17	
Malathion 5EC	3.00	pint	4.33	13	
Delegate	6.00	oz	10.58	63	
Fertilizer:				**224**	
CN9	15.00	gal	1.95	29	
CAN17	20.00	gal	1.90	38	
Ammonium Sulfate	75.00	lb	0.32	24	
20-20-20	80.00	lb	1.10	88	
10-30-30	32.00	lb	1.40	45	
Water:				**270**	
Water-Pumped	12.00	acin	22.50	270	
Custom:				**41,055**	
Weed	3.00	acre	50.00	150	
Soil Analysis	0.05	each	75.00	4	
Bee Hives	2.00	each	110.00	220	
Leaf Analysis	0.07	each	75.00	5	
Piece Rate	4750.00	each	6.50	30,875	
Cool	4750.00	each	0.85	4,038	
Market/Sales Fee	4750.00	each	1.20	5,700	
PCA	1.00	acre	125.00	63	
Harvest:				**8,218**	
Clamshell	4750.00	each	1.73	8,218	
Labor				**6,837**	
Equipment Operator Labor	34.76	hrs	21.70	754	
Non-Machine Labor	377.60	hrs	16.10	6,083	
Machinery				**368**	
Fuel-Gas	76.68	gal	3.25	249	
Fuel-Diesel	5.80	gal	2.92	17	
Lube				40	
Machinery Repair				62	
Interest on Operating Capital @ 4.50%				419	
TOTAL OPERATING COSTS/ACRE				58,287	
TOTAL OPERATING COSTS/EACH				12	
NET RETURNS ABOVE OPERATING COSTS				12,963	

UC COOPERATIVE EXTENSION – AGRICULTURAL ISSUES CENTER
TABLE 6b. CONTINUED
Central Coast – 2017

	Quantity/ Acre	Unit	Price or Cost/Unit	Value or Cost/Acre	Your Cost
CASH OVERHEAD COSTS					
Land Rent				1,450	
Liability Insurance				21	
Office Expense				375	
Field Sanitation				22	
Food Safety				50	
Regulatory Programs				40	
Farm Supervisor				625	
Property Taxes				176	
Property Insurance				15	
Investment Repairs				641	
TOTAL CASH OVERHEAD COSTS/ACRE				3,415	
TOTAL CASH OVERHEAD COSTS/EACH				1	
TOTAL CASH COSTS/ACRE				61,702	
TOTAL CASH COSTS/EACH				13	
NET RETURNS ABOVE CASH COSTS				9,548	
NON-CASH OVERHEAD COSTS (Capital Recovery)					
Irrigation System				97	
Pump and Well				252	
Shop/Hand Tools				28	
Tunnel Metal Support Materials				2,433	
Tunnel Plastic Sheeting				1,825	
Trellis Materials				350	
Sort/Pack Trailer				30	
Shade Structure				6	
Equipment				164	
TOTAL NON-CASH OVERHEAD COSTS/ACRE				5,185	
TOTAL NON-CASH OVERHEAD COSTS/EACH				1	
TOTAL COST/ACRE				66,887	
TOTAL COST/EACH				14	
NET RETURNS ABOVE TOTAL COST				4,363	

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER

TABLE 6c. MONTHLY CASH COSTS PER ACRE TO PRODUCE AND HARVEST RASPBERRIES: PRODUCTION YEAR 3

Central Coast - 2017

	JAN 17	FEB 17	MAR 17	APR 17	MAY 17	JUN 17	JUL 17	Total
Cultural:								
Hand Prune & Train Canes	1,127							1,127
Hand weed	50	50	50					150
Primocane Suppression (Shark)		62						62
Shred Prunings + Disc Row Middles			17					17
Fertilize (CN9, CAN17, 21-0-0-24)		20	40	40				101
Soil Test 2/42 Ac			4					4
Drip Irrigate			51	51	74	74	51	302
Tunnel Management			403					403
Isomate Phermones- LBAM			181					181
Predatory Mites - Persimilis			536					536
Pollination - 2 Hives/Ac (March)			220					220
Fertilize (20-20-20, 10-30-30)					68	68		137
Hand Clip Canes				564				564
Disease, Insect & Mite Management					201			201
Leaf Analysis 3/42 Ac					5			5
Tunnel/Trellis: Remove							2,013	2,013
Postharvest Cleanup							300	300
PCA	9	9	9	9	9	9	9	63
ATV	2	2	2	2	2	2	2	15
Pickup	15	15	15	15	15	15	15	107
TOTAL CULTURAL COSTS	1,203	159	1,529	614	375	237	2,390	6,506
Harvest:								
Harvest Raspberries				13,564	13,574	13,564		40,703
Load/Haul				307	307	307		922
Cool				1,346	1,346	1,346		4,038
Market/Sales Fee						5,700		5,700
TOTAL HARVEST COSTS	0	0	0	15,217	15,228	20,917	0	51,362
Interest on Operating Capital @ 4.50%	5	5	11	70	129	208	-9	419
TOTAL OPERATING COSTS/ACRE	1,208	164	1,540	15,901	15,732	21,362	2,381	58,287
CASH OVERHEAD								
Land Rent								1,450
Liability Insurance								21
Office Expense	54	54	54	54	54	54	54	375
Field Sanitation	3	3	3	3	3	3	3	22
Food Safety							50	50
Regulatory Programs							40	40
Farm Supervisor	89	89	89	89	89	89	89	625
Property Taxes		88					88	176
Property Insurance		7					7	15
Investment Repairs	92	92	92	92	92	92	92	641
TOTAL CASH OVERHEAD COSTS	238	333	238	238	238	238	423	3,415
TOTAL CASH COSTS/ACRE	1,445	497	1,778	16,139	15,970	21,600	2,804	61,702

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER

TABLE 6d. RANGING ANALYSIS: PRODUCTION YEAR 3

Central Coast - 2017

COSTS PER ACRE AND PER EACH AT VARYING YIELDS TO PRODUCE RASPBERRIES

	YIELD (TRAY)						
	3,500	3,900	4,300	4,750	5,200	5,600	6,000
OPERATING COSTS/ACRE:							
Cultural	6,506	6,506	6,506	6,506	6,506	6,506	6,506
Harvest	38,088	42,336	46,584	51,362	56,140	60,388	64,636
Interest on Operating Capital @ 4.50%	325	355	385	419	453	483	513
TOTAL OPERATING COSTS/ACRE	44,920	49,197	53,475	58,287	63,099	67,377	71,655
TOTAL OPERATING COSTS/TRAY	12.83	12.61	12.44	12.27	12.13	12.03	11.94
CASH OVERHEAD COSTS/ACRE	3,415	3,415	3,415	3,415	3,415	3,415	3,415
TOTAL CASH COSTS/ACRE	48,335	52,612	56,890	61,702	66,515	70,792	75,070
TOTAL CASH COSTS/TRAY	13.81	13.49	13.23	12.99	12.79	12.64	12.51
NON-CASH OVERHEAD COSTS/ACRE	5,185	5,185	5,185	5,185	5,185	5,185	5,185
TOTAL COSTS/ACRE	53,520	57,797	62,075	66,887	71,700	75,977	80,255
TOTAL COSTS/TRAY	15.00	15.00	14.00	14.00	14.00	14.00	13.00

Net Return per Acre above Operating Costs for Raspberries

PRICE ($/each)	YIELD (tray/acre)						
4.5 Lb. Tray	3,500	3,900	4,300	4,750	5,200	5,600	6,000
10.00	-9,920	-10,197	-10,475	-10,787	-11,099	-11,377	-11,655
11.00	-6,420	-6,297	-6,175	-6,037	-5,899	-5,777	-5,655
13.00	580	1,503	2,425	3,463	4,501	5,423	6,345
15.00	7,580	9,303	11,025	12,963	14,901	16,623	18,345
17.00	14,580	17,103	19,625	22,463	25,301	27,823	30,345
19.00	21,580	24,903	28,225	31,963	35,701	39,023	42,345
22.00	32,080	36,603	41,125	46,213	51,301	55,823	60,345

Net Return per Acre above Cash Costs for Raspberries

PRICE ($/each)	YIELD (tray/acre)						
4.5 Lb. Tray	3,500	3,900	4,300	4,750	5,200	5,600	6,000
10.00	-13,335	-13,612	-13,890	-14,202	-14,515	-14,792	-15,070
11.00	-9,835	-9,712	-9,590	-9,452	-9,315	-9,192	-9,070
13.00	-2,835	-1,912	-990	48	1,085	2,008	2,930
15.00	4,165	5,888	7,610	9,548	11,485	13,208	14,930
17.00	11,165	13,688	16,210	19,048	21,885	24,408	26,930
19.00	18,165	21,488	24,810	28,548	32,285	35,608	38,930
22.00	28,665	33,188	37,710	42,798	47,885	52,408	56,930

Net Return per Acre above Total Costs for Raspberries

PRICE ($/each)	YIELD (tray/acre)						
4.5 Lb. Tray	3,500	3,900	4,300	4,750	5,200	5,600	6,000
10.00	-18,520	-18,797	-19,075	-19,387	-19,700	-19,977	-20,255
11.00	-15,020	-14,897	-14,775	-14,637	-14,500	-14,377	-14,255
13.00	-8,020	-7,097	-6,175	-5,137	-4,100	-3,177	-2,255
15.00	-1,020	703	2,425	4,363	6,300	8,023	9,745
17.00	5,980	8,503	11,025	13,863	16,700	19,223	21,745
19.00	12,980	16,303	19,625	23,363	27,100	30,423	33,745
22.00	23,480	28,003	32,525	37,613	42,700	47,223	51,745

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER

TABLE 7. WHOLE FARM ANNUAL EQUIPMENT, INVESTMENT, AND BUSINESS OVERHEAD

Central Coast - 2017

ANNUAL EQUIPMENT COSTS: Production Year 1

					Cash Overhead		
Description	Price	Yrs. Life	Salvage Value	Capital Recovery	Insurance	Taxes	Total
55HP 2WD Tractor	37,609	12	9,403	3,653	20	235	3,907
ATV 4WD	8,350	7	3,167	1,054	5	58	1,116
Pickup Truck 1/2 Ton	28,000	5	12,549	4,196	17	203	4,416
Trailer	2,300	20	120	181	1	12	194
Cane Sprayer 100g 3 pt.	10,500	8	2,371	1,376	5	64	1,446
Truck 2 Ton	63,000	5	28,235	9,442	39	456	9,936
24HP 4WD Tractor	13,500	10	3,988	1,431	7	87	1,526
Disc 5'	1,900	10	336	219	1	11	231
TOTAL	165,159	-	60,168	21,552	95	1,127	22,774
60% of New Cost*	99,095	-	36,101	12,931	57	676	13,665

*Used to reflect a mix of new and used equipment

ANNUAL EQUIPMENT COSTS: Production Year 2

					Cash Overhead		
Description	Price	Yrs. Life	Salvage Value	Capital Recovery	Insurance	Taxes	Total
55HP 2WD Tractor	37,609	12	9,403	3,653	20	235	3,907
ATV 4WD	8,350	7	3,167	1,054	5	58	1,116
Pickup Truck 1/2 Ton	28,000	5	12,549	4,196	17	203	4,416
Cane Sprayer 100g 3 pt.	10,500	8	2,371	1,376	5	64	1,446
Mower (flail) 5'	6,500	10	1,149	750	3	38	792
Truck 2 Ton	63,000	5	28,235	9,442	39	456	9,936
Truck 2 Ton #2	63,000	5	28,235	9,442	39	456	9,936
24HP 4WD Tractor	13,500	10	3,988	1,431	7	87	1,526
Disc 5'	1,900	10	336	219	1	11	231
TOTAL	232,359	-	89,433	31,563	136	1,609	33,308
60% of New Cost*	139,415	-	53,660	18,938	82	965	19,985

*Used to reflect a mix of new and used equipment

ANNUAL EQUIPMENT COSTS: Production Year 3

					Cash Overhead		
Description	Price	Yrs. Life	Salvage Value	Capital Recovery	Insurance	Taxes	Total
55HP 2WD Tractor	37,609	12	9,403	3,653	20	235	3,907
ATV 4WD	8,350	7	3,167	1,054	5	58	1,116
Pickup Truck 1/2 Ton	28,000	5	12,549	4,196	17	203	4,416
Cane Sprayer 100g 3 pt.	10,500	8	2,371	1,376	5	64	1,446
140HP MFWD Tractor	146,000	15	28,424	12,749	74	872	13,695
Truck 2 Ton	63,000	5	28,235	9,442	39	456	9,936
Disc-Stubble 14'	19,283	15	1,851	1,772	9	106	1,887
24HP 4WD Tractor	13,500	10	3,988	1,431	7	87	1,526
Mower (flail) 5'	6,500	10	1,149	750	3	38	792
Disc 5'	1,900	10	336	219	1	11	231
TOTAL	334,642	-	91,473	36,642	180	2,131	38,953
60% of New Cost*	200,785	-	54,884	21,985	108	1,278	23,372

*Used to reflect a mix of new and used equipment

UC COOPERATIVE EXTENSION – AGRICULTURAL ISSUES CENTER
TABLE 7. CONTINUED
Central Coast - 2017

ANNUAL INVESTMENT COSTS: Production Years 1 to 3

Description	Price	Yrs. Life	Salvage Value	Capital Recovery	Cash Overhead			Total
					Insurance	Taxes	Repairs	
INVESTMENT								
Irrigation System	58,800	25	4,116	4,086	27	315	1,176	5,603
Pump and Well	150,000	25	3,750	10,564	65	769	3,000	14,398
Shop/Hand Tools	13,000	15	1,260	1,194	6	71	252	1,523
Tunnel Metal Support Materials	824,611	10	57,723	102,202	373	4,412	16,492	123,479
Tunnel Plastic Sheeting	208,711	3	0	76,640	88	1,044	4,174	81,946
Trellis Materials	78,736	6	5,512	14,702	36	421	1,575	16,734
Sort/Pack Trailer	10,000	10	700	1,239	5	54	200	1,497
Shade Structure	2,100	10	147	260	1	11	42	314
TOTAL INVESTMENT	1,345,958	-	73,208	210,888	600	7,096	26,911	245,495

ANNUAL BUSINESS OVERHEAD COSTS-delete decimals
Production Years 1 and 2

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Land Rent	45	acre	2,900	130,500
Liability Insurance	45	acre	21	940
Office Expense	45	acre	750	33,750
Field Sanitation	45	acre	44	2,000
Food Safety	45	acre	100	4,500
Regulatory Programs	45	acre	80	3,600
Farm Supervisor	45	acre	1,250	56,250

Production Year 3

Description	Units/ Farm	Unit	Price/ Unit	Total Cost
Land Rent	45	acre	1,450	65,250
Liability Insurance	45	acre	21	940
Office Expense	45	acre	375	16,875
Field Sanitation	45	acre	22	1,000
Food Safety	45	acre	50	2,250
Regulatory Programs	45	acre	40	1,800
Farm Supervisor	45	acre	625	28,125

UC COOPERATIVE EXTENSION-AGRICULTURAL ISSUES CENTER

TABLE 8. HOURLY EQUIPMENT COSTS FOR RASPBERRIES: PRODUCTION YEARS 1 TO 3

Central Coast – 2017

HOURLY EQUIPMENT COSTS: Production Year 1

Description	RASPBERRIES Hours Used	Total Hours Used	Capital Recovery	Cash Overhead Insurance	Cash Overhead Taxes	Operating Lube & Repairs	Operating Fuel	Operating Total Oper.	Total Costs/Hr.
55HP 2WD Tractor	191	1000	2.19	0.01	0.14	2.90	7.89	10.78	13.13
ATV 4WD	16	285	2.22	0.01	0.12	0.94	2.17	3.11	5.46
Pickup Truck 1/2 Ton	98	400	6.29	0.03	0.30	3.06	6.50	9.56	16.19
Trailer	64	150	0.72	0.00	0.05	0.34	0.00	0.34	1.12
Cane Sprayer 100g 3 pt.	110	250	3.30	0.01	0.15	1.82	0.00	1.82	5.30
Truck 2 Ton	984	1000	5.66	0.02	0.27	3.53	9.75	13.28	19.24
24HP 4WD Tractor	32	1600	0.54	0.00	0.03	0.74	2.58	3.33	3.90
Disc 5'	29	200	0.66	0.00	0.03	0.31	0.00	0.31	1.01

HOURLY EQUIPMENT COSTS: Production Year 3

Description	RASPBERRIES Hours Used	Total Hours Used	Capital Recovery	Cash Overhead Insurance	Cash Overhead Taxes	Operating Lube & Repairs	Operating Fuel	Operating Total Oper.	Total Costs/Hr.
55HP 2WD Tractor	181	1000	2.19	0.01	0.14	2.90	7.89	10.78	13.13
ATV 4WD	32	285	2.22	0.01	0.12	0.94	2.17	3.11	5.46
Pickup Truck 1/2 Ton	196	400	6.29	0.03	0.30	3.06	6.50	9.56	16.19
Cane Sprayer 100g 3 pt.	165	250	3.30	0.01	0.15	1.82	0.00	1.82	5.30
Mower (flail) 5'	9	200	2.25	0.01	0.11	3.16	0.00	3.16	5.53
Truck 2 Ton	985	1000	5.66	0.02	0.27	3.53	9.75	13.28	19.24
Truck 2 Ton #2	737	1000	5.66	0.02	0.27	3.53	9.75	13.28	19.24
24HP 4WD Tractor	26	1600	0.54	0.00	0.03	0.74	2.58	3.33	3.90
Disc 5'	14	200	0.66	0.00	0.03	0.31	0.00	0.31	1.01

HOURLY EQUIPMENT COSTS: Production Year 3

Description	RASPBERRIES Hours Used	Total Hours Used	Capital Recovery	Cash Overhead Insurance	Cash Overhead Taxes	Operating Lube & Repairs	Operating Fuel	Operating Total Oper.	Total Costs/Hr.
55HP 2WD Tractor	60	1000	2.19	0.01	0.14	2.90	7.89	10.78	13.13
ATV 4WD	21	285	2.22	0.01	0.12	0.94	2.17	3.11	5.46
Pickup Truck 1/2 Ton	126	400	6.29	0.03	0.30	3.06	6.50	9.56	16.19
Cane Sprayer 100g 3 pt.	55	250	3.30	0.01	0.15	1.82	0.00	1.82	5.30
140HP MFWD Tractor	7	1066	7.18	0.04	0.49	7.26	23.73	30.98	38.69
Truck 2 Ton	985	1000	5.66	0.02	0.27	3.53	9.75	13.28	19.24
Disc-Stubble 14'	6	133	7.99	0.04	0.48	3.06	0.00	3.06	11.57
24HP 4WD Tractor	26	1600	0.54	0.00	0.03	0.74	2.58	3.33	3.90
Mower (flail) 5'	9	200	2.25	0.01	0.11	3.16	0.00	3.16	5.53
Disc 5'	14	200	0.66	0.00	0.03	0.31	0.00	0.31	1.01