

BLUEBERRY ECONOMICS: THE COSTS OF ESTABLISHING AND PRODUCING ORGANIC MARKET, HAND-AND MACHINE HARVESTED BLUEBERRIES IN THE WILLAMETTE VALLEY

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Blueberry Economics: The Costs of Establishing and Producing Organic Hand- and Machine-Harvested Blueberries in the Willamette Valley

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Introduction

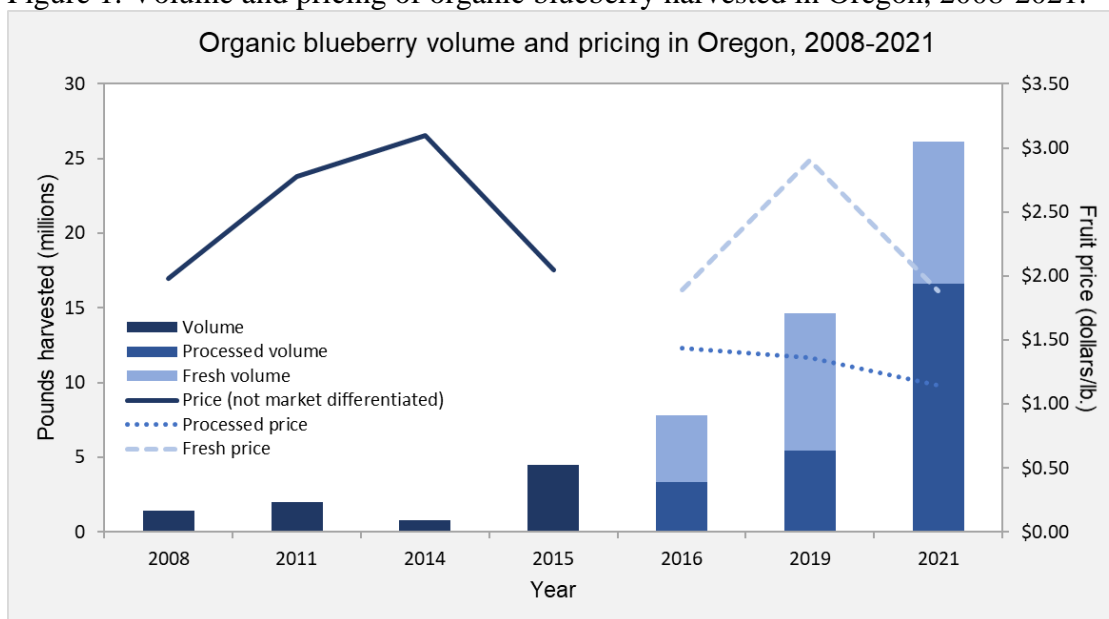
The production of certified organic blueberries in Oregon increased over 600% in 10 years, from 392 acres harvested in 2011 to 2,987 acres harvested in 2021. The organic production volume and the related prices per pound over that same period are shown in Figure 1. Production volume increased 370% over a 10-year period while price per pound fluctuated between \$1.15 and \$3.10, depending on the year and market (fresh or processed). The highest prices were seen in 2014, while in more recent years price per pound for organic blueberries dropped below \$2.00 per pound. In Oregon, organic production volume and sales data were not differentiated by market until 2016. In 2021, the most recent year with data reported at the time of this publication, organic blueberries were 63% processed. It is essential to understand that returns for blueberries are variable from year to year and to plan for this when developing your own budget for a farm.

This study estimates the typical returns and costs to establish to a well-managed 20-acre

blueberry planting in the Willamette Valley **using two harvesting methods: hand and machine harvest.** Blueberries are an expensive crop to produce. Profit and loss depend greatly on yield, price received by the grower, and labor costs. Of total cash costs, labor is 59 percent to hand harvest blueberries and 29 percent to machine harvest. The yield for a mature blueberry field will vary depending on the cultivar or variety grown, soil type, and management practices. The number of years to reach full production may also vary by farm, with poorer performing fields taking longer than the 7 years in this analysis. This cost of establishment and production study provides growers a tool for financial management and decision-making. This study is a product of cooperative input from selected growers, field representatives, researchers, and farm suppliers. Careful budget planning is key to managing these fluctuations and ensuring the financial stability of your business. Therefore, growers are encouraged to substitute their costs to get an accurate accounting of their farm.

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Figure 1. Volume and pricing of organic blueberry harvested in Oregon, 2008-2021.



Source: USDA NASS agricultural census.

Note: Until 2016, organic blueberry production and value data were not differentiated by market. Data are not collected every year for organic blueberry production, and the volumes are likely underestimating organic production in Oregon. 2021 was the most recent year with data reported at the time of this 2025 publication.

Assumptions

Many individuals were involved in this study, including growers, university researchers, and Extension faculty. Based on the insights and suggestions from these industry stakeholders, the following assumptions were made, which provided a basis for this analysis.

- 1) A typical producer of blueberries in the Willamette Valley raises 20 acres of blueberries on a 100-acre farm.
- 2) The plant spacing is 3ft x 10ft (1,452 plants per acre). Plants cost \$5.25 each and are planted in October of year 0.
- 3) The field has a 25-year life, including all establishment years.
- 4) The soil is uniform throughout the 20-acre field and is well suited to blueberry production.
- 5) Pre-planting land preparation (plowing, disking, etc.) is contracted with custom farming providers.
- 6) Sawdust is incorporated before forming raised beds and planting blueberries.
- 7) Sawdust mulch is used and replenished every three years during planting life. Note that using weed mats is not included in this study but would change materials and weed management costs.
- 8) Commercial production begins in year 2 with 1,500 pounds per acre yields, and full production starts in year 7 with 18,000 pounds per acre.
- 9) Various techniques reduce bird depredation, including cannons and AV alarm systems.
- 10) *Hand-harvested fruit*: Berries are harvested using pickers through year 6 of establishment, and at full production, 90 percent are hand-harvested and 10 percent by machine.
- 11) *Machine-harvested fruit*: Berries are harvested using pickers in years two and three of establishment and

machine-harvested in subsequent years, with 50 percent of the fruit sold to the fresh market and the remaining fruit as processed.

- 12) Pruning labor hours is 100 hours per acre at year 6 and subsequent years.
- 13) The fresh market price for organic blueberries is \$2.15 per lb., and the processed market price is \$1.20 per lb.
- 14) The operator owns all buildings and farm equipment debt-free.
- 15) The machinery and equipment used in the budget reflect the typical machinery complement of a Willamette Valley blueberry grower. A detailed breakdown of machinery values is shown in Table 1, page 5. Table 2 provides estimated machinery costs from the American Society of Agricultural Engineers. Table 3 lists the estimated cost of each operation.
- 16) Gasoline and diesel are \$3.25 per gallon.
- 17) General labor is valued at \$22.00 per hour, and equipment operator labor is valued at \$30.00 per hour, including worker's compensation, unemployment insurance, and other overhead expenses.
- 18) During field preparation, the field is watered with hand lines. After planting, the permanent irrigation system is installed in early spring of year 1 for \$900 per acre for the pump, filter, injector, and manifold and \$2,500 per acre for irrigation lines and emitters. The pumping cost is \$275 per acre. Repairs and maintenance for the irrigation system cost one percent of the purchase price per year.
- 19) The trellis is installed in year 2 at a cost of \$1,700 per acre. This trellis system consists of T-posts, metal end posts, and cross arms.

This dollar figure also accounts for the cost of marking out the field using a GPS system. This budget assumes contract workers drive the posts at a rate of \$200 per acre. Repairs and maintenance for the system cost one percent of the purchase price per year.

- 20) The interest rate on operating funds is 8.0 percent and treated as a cash expense. One-half of the cash expenses are borrowed for six months.
- 21) The operator owns the machinery and land and assessed 8.0 and 4.0 percent interest rates, respectively, as a return on the owner's investment. The land is valued at \$15,000 per acre. The 4.0 percent return on land is equivalent to the current rate landowners could charge for rent to other growers.
- 22) *Machine Harvest Costs.* The cost to machine-harvest blueberries is \$0.16 per pound, whether the grower custom hires someone to harvest or purchases the machine themselves. The calculations are based on the following.
 - a. *Replacement costs* are calculated using the straight-line depreciation method: $\frac{((\text{purchase price} - \text{salvage value}) \div \text{years of machine life}) \div \text{total acres}}$. The purchase price is \$364,000, with a salvage value of \$3,640 at the end of 10-years. This cost is \$1,802 per acre.
 - b. *Interest costs* are calculated using the average value of the machine multiplied by an interest rate: $\frac{((\text{purchase price} + \text{salvage value}) \div 2) \times \text{interest rate}}{\div \text{total acres}}$. The interest rate is 8.0%. This cost is \$735 per acre.
 - c. *Repairs and maintenance costs* are calculated using a percentage of the machine's purchase price: $\frac{(\text{purchase price} \times \text{one percent}) \div \text{total acres}}$. This cost is \$182 per acre.
 - d. *Fuel and lube costs* are based on fuel consumption of four gallons per hour and lube 15% above the fuel costs. The

machine harvests four acres per day in 10 hours: $\frac{((4 \text{ gallons/hour} \times 10 \text{ hours}) \times (\$3.25 \text{ per gallon} \times 1.15)) \div \text{total acres per day}}$. This cost is \$37 per acre.

- e. *Operator labor* is estimated at \$30 per hour: $\frac{((10 \text{ hours per day} \times \$30 \text{ per hour}) \div \text{total acres per day})$. This cost is \$75 per acre.
- f. *The total variable and fixed cash costs to harvest blueberries with the above assumptions* is $\frac{((a+b+c+d+e) \div \text{pounds harvested per acre})}{((\$1,802 + \$735 + \$182 + \$37 + \$75) \div 18,000 \text{ pounds})}$. This cost is \$0.16 per pound.
- 23) The operator funds the previous year's establishment costs at a charge of 6.0 percent interest as a return on the owner's investment.
- 24) Unrecovered establishment costs are amortized over the remaining 18 years of assumed field life and included in the full production budget as a fixed cost.
- 25) Additional assumptions for hand-harvest variable and fixed cash costs are in Table 4HH, machine-harvest costs in Table 4MH, and fixed costs in Table 5, all on page 6.
- 26) \$1,990 per year was budgeted under "Compliance" in year 1, \$2,090 in year 2, and \$3,480 in year 3 and subsequent years. Compliance includes record-keeping, inspection fees, auditing, certification, documentation, training, and lab testing (e.g., water quality). For specific items and costs, refer to the previous establishment study from 2020, Table 4. Follow this link: <https://appliedecon.oregonstate.edu/sites/agscid7/files/applied-economics/aeb0062.pdf>
- 27) No adjustments were made to account for year-to-year fluctuations in yields and prices.
- 28) Price inflation for this study was ignored.
- 29) Owner management, family living, and State and Federal income tax consequences are also ignored.

Table 1. Machinery Cost Assumptions.

| Machine | Size or Description | Market value | Hours or miles of annual use | Expected life (years) | Salvage Value |
|-----------------------------|---|--------------|------------------------------------|--------------------------|------------------|
| Tractor | 4 wheel dr 35hp, new | \$ 32,000 | 250 | 15 | \$ 6,230 |
| Air-blast Sprayer | 200 gallon unit, PTO, new | 13,000 | 100 | 15 | 1,248 |
| Mower | Flail, 5' unit | 6,000 | 65 | 15 | 576 |
| Weed Sprayer | 3 point, 200 gallon unit | 5,600 | 25 | 15 | 538 |
| Cultivator | '6' unit, disk/ripper | 3,500 | 31 | 15 | 336 |
| Planter | 6' unit | 5,600 | 8 | 15 | 538 |
| Fertilizer Spreader | Broadcast bander | 4,000 | 15 | 15 | 384 |
| Pickup* | 1/2 ton 4x4, gas, new | 45,000 | 12,000 | 10 | 17,017 |
| ATV* | 4 wheeler, new | 14,000 | 3,000 | 5 | 8,391 |
| Mainline & pump, per acre* | Pump, filter, injector & manifold | 900 | N/A | N/A | 0 |
| Irrigation System, per acre | Irrigation lines & emitters | 2,500 | N/A | 25 | 0 |
| Trellis System, per acre | Two wire, wooden end post, metal in-row post | 1,700 | N/A | 23 | 0 |
| Shop and Machine Shed* | 40ft x 80ft Pole barn with partial slab floor | 50,000 | N/A | 30 | 0 |

* Truck, ATV, Irrigation System, Shop, and Machine Shed budget allocation will be 20% of total farm usage to reflect berry portion of farm.

Table 2. Machinery Cost Calculations.

| | | --- Variable costs --- | | ----- Fixed costs ----- | | |
|-----------------------------|---|------------------------|---------------------|-------------------------|----------|---------|
| Machine | Size or Description | Fuel & Lube | Repairs & Maint. | Depreciation | Interest | Total |
| ----- Costs per hour ----- | | | | | | |
| Tractor | 4 wheel dr 35hp, new | \$10.56 | \$0.50 | \$5.44 | \$0.27 | \$16.77 |
| Air-blast Sprayer | 200 gallon unit, PTO, new | 0.00 | 6.00 | 7.91 | 0.38 | 14.30 |
| Mower | Flail, 5' unit | 0.00 | 2.56 | 5.59 | 0.27 | 8.42 |
| Weed Sprayer | 3 point, 200 gallon unit | 0.00 | 1.64 | 15.51 | 0.75 | 17.91 |
| Fertilizer Spreader | Broadcast bander | 0.00 | 1.02 | 17.53 | 0.85 | 19.41 |
| ----- Costs per mile ----- | | | | | | |
| Pickup* | 1/2 ton 4x4, gas, new | \$0.22 | \$0.05 | \$0.23 | \$0.21 | \$0.71 |
| ATV* | 4 wheeler, new | 0.65 | 0.03 | 0.37 | 0.30 | 1.35 |
| ----- Costs per acre ----- | | | | | | |
| Mainline & pump, per acre* | Pump, filter, injector & manifold | \$0.00 | \$9.00 | \$36.00 | \$13.50 | \$58.50 |
| Irrigation System, per acre | Irrigation lines & emitters | 0.00 | 25.00 | 100.00 | 37.50 | 162.50 |
| Trellis System, per acre | Two wire, wooden end post, metal in-row post | 0.00 | 17.00 | 73.91 | 25.50 | 116.41 |
| Shop and Machine Shed* | 40ft x 80ft Pole barn with partial slab floor | 0.00 | 13.25 | 16.67 | 7.50 | 37.42 |

* Truck, ATV, Irrigation System, Shop, and Machine Shed budget allocation will be 20% of total farm usage to reflect berry portion of farm.

Table 3. Estimated cost of each operation with power-unit for a 10' between row spacing.

| Operation | Miles per hour | Acres per hour | Labor cost per acre | -- Machine costs -- | | Total cost per acre |
|---------------------|-------------------|-------------------|------------------------|------------------------------|------------------------|------------------------|
| | | | | Variable cost per acre | Fixed cost per acre | |
| Air-blast Sprayer | 3.00 | 2.18 | \$13.75 | \$7.82 | \$6.42 | \$37.89 |
| Mower | 3.00 | 3.09 | 9.70 | 4.41 | 3.74 | 20.39 |
| Weed Sprayer | 3.00 | 2.73 | 11.00 | 4.66 | 8.06 | 26.29 |
| Fertilizer Spreader | 3.00 | 6.18 | 4.85 | 1.96 | 3.90 | 25.44 |

Table 4HH. Input Assumptions to Establish a **Organic Market, Hand-Harvested** Blueberry Planting, per acre.

| | Year 0 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Full Prod |
|---|------------|------------|------------|------------|------------|------------|------------|------------|
| Prices per lb, fresh market | \$0.00 | \$0.00 | \$2.15 | \$2.15 | \$2.15 | \$2.15 | \$2.15 | \$2.15 |
| Prices per lb, processed market | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$1.20 |
| Lbs per acre, fresh market | 0 | 0 | 1,500 | 3,600 | 7,200 | 10,800 | 14,400 | 16,200 |
| Lbs per acre, processed market | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,800 |
| Cost of general farm labor, per hour | \$22.00 | \$22.00 | \$22.00 | \$22.00 | \$22.00 | \$22.00 | \$22.00 | \$22.00 |
| Cost of tractor driver, per hour | \$30.00 | \$30.00 | \$30.00 | \$30.00 | \$30.00 | \$30.00 | \$30.00 | \$30.00 |
| Cost of hand-harvest labor, per lb | \$0.00 | \$0.00 | \$0.85 | \$0.85 | \$0.85 | \$0.85 | \$0.85 | \$0.85 |
| Cost of machine-harvest, per lb | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.16 |
| Cost to load & haul berries, per lb | \$0.00 | \$0.00 | \$0.03 | \$0.03 | \$0.03 | \$0.03 | \$0.03 | \$0.03 |
| Berry commission fee, \$ per lb | \$0.00 | \$0.00 | \$0.04 | \$0.04 | \$0.04 | \$0.04 | \$0.04 | \$0.04 |
| Cost of fertilizer | \$850.00 | \$850.00 | \$850.00 | \$850.00 | \$850.00 | \$850.00 | \$1,050.00 | \$1,050.00 |
| Cost of insecticide | \$0.00 | \$75.00 | \$175.00 | \$175.00 | \$175.00 | \$175.00 | \$365.00 | \$365.00 |
| Cost of fungicides | \$0.00 | \$0.00 | \$300.00 | \$300.00 | \$300.00 | \$300.00 | \$450.00 | \$450.00 |
| Cost of tissue analysis, per acre | \$0.00 | \$0.00 | \$10.00 | \$10.00 | \$10.00 | \$10.00 | \$10.00 | \$10.00 |
| Cost of soil analysis, per acre | \$8.00 | \$0.00 | \$3.50 | \$3.50 | \$3.50 | \$3.50 | \$3.50 | \$3.50 |
| Cost of bird control | \$0.00 | \$0.00 | \$150.00 | \$150.00 | \$150.00 | \$150.00 | \$150.00 | \$150.00 |
| Cost of bee hives | \$0.00 | \$0.00 | \$136.00 | \$136.00 | \$136.00 | \$136.00 | \$136.00 | \$136.00 |
| Cost of plants | \$5.25 | \$5.25 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| Cost of irrigation water and power | \$275.00 | \$275.00 | \$275.00 | \$275.00 | \$275.00 | \$275.00 | \$275.00 | \$275.00 |
| Cost of cover crop seed | \$25.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| Cost of sawdust, per unit | \$85.00 | \$85.00 | \$0.00 | \$0.00 | \$85.00 | \$0.00 | \$0.00 | \$85.00 |
| Cost of loader rental | \$62.50 | \$62.50 | \$0.00 | \$0.00 | \$62.50 | \$0.00 | \$0.00 | \$20.83 |
| Cost of portable toilets | \$0.00 | \$75.00 | \$75.00 | \$75.00 | \$75.00 | \$75.00 | \$75.00 | \$75.00 |
| Units of sawdust | 19.00 | 11.00 | 0.00 | 0.00 | 11.00 | 0.00 | 0.00 | 3.67 |
| Hours of labor, pruning | 0.00 | 0.00 | 25.00 | 40.00 | 60.00 | 85.00 | 100.00 | 100.00 |
| Hours of labor, hand weeding | 0.00 | 18.00 | 13.00 | 13.00 | 10.00 | 10.00 | 10.00 | 10.00 |
| Hours of irrigating labor | 32.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| Hours of fertigation labor | 0.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 | 3.00 |
| Hours of labor to plant | 50.00 | 5.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Hours of trellis labor | 0.00 | 0.00 | 30.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Hours of IPM scouting | 0.00 | 0.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| Hours of bird control | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Bee hives per acre | 0.00 | 0.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 | 4.00 |
| Portable toilets per acre | 0.00 | 0.50 | 0.50 | 0.75 | 0.75 | 0.75 | 0.75 | 0.75 |
| Times to fertilize (dry) | 1.00 | 1.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 | 2.00 |
| Times to apply fungicides & insecticide | 2.00 | 2.00 | 11.00 | 11.00 | 11.00 | 11.00 | 12.00 | 12.00 |
| Times to mow | 0.00 | 3.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 | 6.00 |
| Cost of compliance | \$1,140.00 | \$1,990.00 | \$3,480.00 | \$3,480.00 | \$3,480.00 | \$3,480.00 | \$3,480.00 | \$3,480.00 |
| Planted bushes | 1,452 | 35 | 0 | 0 | 0 | 0 | 0 | 0 |

Table 4MH. Partial List of Input Assumptions to Establish a **Organic Market, Machine-Harvested** Blueberry Planting, per acre.

| | Year 0 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Full Prod |
|---------------------------------------|----------|----------|----------|----------|----------|----------|------------|------------|
| Prices per lb, fresh market | \$0.00 | \$0.00 | \$2.15 | \$2.15 | \$2.15 | \$2.15 | \$2.15 | \$2.15 |
| Prices per lb, processed market | \$0.00 | \$0.00 | \$1.20 | \$1.20 | \$1.20 | \$1.20 | \$1.20 | \$1.20 |
| Lbs per acre, fresh market | 0 | 0 | 1,500 | 3,600 | 3,600 | 5,300 | 7,200 | 9,000 |
| Lbs per acre, processed market | 0 | 0 | 0 | 0 | 3,600 | 5,300 | 7,200 | 9,000 |
| Cost of hand-harvest labor, per lb | \$0.00 | \$0.00 | \$0.85 | \$0.85 | \$0.00 | \$0.00 | \$0.00 | \$0.00 |
| Cost of machine-harvest labor, per lb | \$0.00 | \$0.00 | \$0.00 | \$0.00 | \$0.16 | \$0.16 | \$0.16 | \$0.16 |
| Cost of fertilizer | \$850.00 | \$850.00 | \$850.00 | \$850.00 | \$850.00 | \$850.00 | \$1,050.00 | \$1,050.00 |
| Cost of insecticide | \$0.00 | \$75.00 | \$175.00 | \$175.00 | \$175.00 | \$175.00 | \$365.00 | \$365.00 |
| Cost of fungicides | \$0.00 | \$0.00 | \$300.00 | \$300.00 | \$300.00 | \$300.00 | \$450.00 | \$450.00 |

Table 5. Fixed Cost Input Assumptions to Establish Blueberry Plantings, per acre.

| | | | |
|-------------------------------------|----------|---------------------------------------|-------|
| Property insurance | \$25 | Operating interest rate | 8.00% |
| Property taxes, including buildings | \$30 | Machinery interest rate | 8.00% |
| Land values | \$15,000 | Building interest rate | 3.00% |
| Miscellaneous & overhead | \$200 | Land interest rate | 4.00% |
| Gasoline price, per gallon | \$3.25 | Percent of operating capital borrowed | 50.0% |
| Diesel fuel price, per gallon | \$3.25 | Months to borrow operating capital | 6.0 |

Results of establishing and producing organic market, hand-harvested blueberries in the Willamette Valley, Oregon

Cash flow analysis

A cash flow analysis for establishing an organic market, hand-harvested blueberry planting is presented in Table 6HH, page 9. It shows the cash costs required to develop this type of planting. Cash costs include blueberry bushes, irrigation and trellis systems, fertilizer, chemicals, sawdust, labor, beehives, bird control, machinery repairs, fuel, lube, and oil, irrigation water assessments, operating (short-term) interest, compliance costs, machinery and whole-farm insurance, and property taxes. The income, variable, and cash fixed costs are shown for the seven establishment years plus the first full production year.

Total variable costs are \$13,481 in year 0, with an additional \$1,195 of cash fixed costs for a total cash cost of \$14,676 per acre. A positive cash flow begins at year four with gross income exceeding total cash costs by \$73 per acre. However, the planting does not return a sufficient net returns to pay all previous years' cash costs; \$9,731 per acre remains over and above prior expenses.

The major cost components to total cash costs are shown in Table 8HH, page 11. Harvest labor represents 44 percent of the cash needed to establish this planting. Besides harvest labor, labor, not including harvest, costs are the second largest item, making up 15 percent of the total cash costs. The total labor cost is 59 percent of all cash costs; the remainder is in the other cost categories: fertilizer and chemicals, the category of other, and blueberry plants, which are 10, 10, and 8 percent,

respectively. The remaining six items comprise about 13 percent of the total cash costs.

Total costs and returns

The total costs and returns for establishing an organic market, hand-harvested blueberry planting is on Table 7HH, page 10. Total costs include all cash out-of-pocket and ownership costs, which consist of a combination of principal and interest payments and a return on investment, or both, to the grower for machinery, land, and funds to pay previous years' establishment costs. The gross income and variable cash costs remain the same as in Table 6HH, except the irrigation and trellis systems are amortized over their productive life and included in fixed costs.

Net projected returns (gross income minus total costs) become positive in year 6 with \$3,187 per acre. At the end of the establishment period, \$33,723 per acre remains to repay all previous costs. This cost is amortized over 18 years as an annual payment of \$4,309 per acre, including principal and interest, to recover the capital investment of establishing the orchard.

Table 8HH, page 11, shows the major cost components as a percent of total total cost. When all expenses are included, the top item is harvesting labor, at 30 percent of total costs. Next, the category of other, and interest charges on loans, establishment, and land are 24 and 16 percent, respectively, followed by labor, other than harvest, at 10 percent. The remaining five items comprise about 19 percent of the total costs.

*Summary of establishing organic market,
hand-harvest blueberries*

Figure 2, page 11, shows the cumulative cash and total costs of establishing an organic market of hand-harvested blueberries. The light and darker blue lines denote these results. Cumulative net returns after subtracting cash costs become positive in year 9 with \$1,838 and the cumulative net returns after subtracting total costs are positive year 15 with \$5,071 per acre.

Appendix A, Tables 11HH-18HH, pages 19-26, contains the annual cost and return budgets for establishing this blueberry planting.

Sensitivity Analysis

Table 9HH, page 11, shows the estimated per-acre returns over cash and total costs at

varying yields and prices when the blueberry planting is in full production. The return over cash cost is \$15,104 per acre at our assumed yield and price of 18,000 pounds and average price of \$2.06 per pound. Prices increase or decrease by \$0.10 per pound and yields by 1,000 pounds per acre. In this sensitivity analysis, returns per acre are positive at all yields and prices.

Table 10HH shows the estimated per-acre returns over total costs at varying yields and prices when the orchard is in full production. The return on total cost is \$5,542 per acre at our assumed yield and price of 18,000 pounds and \$2.06 per pound. In this sensitivity analysis, returns per acre are positive at yields above 16,000 pounds and a price of \$1.96.

Table 6HH. Cash Costs and Returns of Establishing and Producing an **Organic Market, Hand-Harvested** Blueberry Planting.

| Income: | Year 0 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Full Prod |
|------------------------------|---------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Yield (lbs/acre) fresh | 0 | 0 | 1,500 | 3,600 | 7,200 | 10,800 | 14,400 | 16,200 |
| Processed | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,800 |
| Price (dollars/lb) Fresh | \$0.00 | \$0.00 | \$2.15 | \$2.15 | \$2.15 | \$2.15 | \$2.15 | \$2.15 |
| Price (dollars/lb) Processed | <u>0.00</u> | <u>0.00</u> | <u>0.00</u> | <u>0.00</u> | <u>0.00</u> | <u>0.00</u> | <u>0.00</u> | <u>1.20</u> |
| Gross Income (dollars/acre) | \$0.00 | \$0.00 | \$3,225.00 | \$7,740.00 | \$15,480.00 | \$23,220.00 | \$30,960.00 | \$36,990.00 |
| Variable Costs (per acre): | | | | | | | | |
| Custom work/Rental equip. | \$637.50 | \$62.50 | \$0.00 | \$0.00 | \$62.50 | \$0.00 | \$0.00 | \$308.83 |
| Blueberry bushes | 7,623.00 | 183.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Fertilizer | 850.00 | 850.00 | 850.00 | 850.00 | 850.00 | 850.00 | 1,050.00 | 1,050.00 |
| Soil test | 8.00 | 0.00 | 0.00 | 0.00 | 3.50 | 0.00 | 0.00 | 3.50 |
| Chemicals | 0.00 | 0.00 | 475.00 | 475.00 | 475.00 | 475.00 | 815.00 | 815.00 |
| Sawdust | 1,615.00 | 85.00 | 0.00 | 0.00 | 85.00 | 0.00 | 0.00 | 28.33 |
| Cover crop seed | 35.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Harvest labor | 0.00 | 0.00 | 1,275.00 | 3,060.00 | 6,120.00 | 9,180.00 | 12,240.00 | 13,770.00 |
| Pruning labor | 0.00 | 0.00 | 550.00 | 880.00 | 1,320.00 | 1,870.00 | 2,200.00 | 2,200.00 |
| General labor | 1,864.85 | 671.97 | 1,429.16 | 505.16 | 505.16 | 505.16 | 518.91 | 518.91 |
| Other harvest costs | 0.00 | 0.00 | 115.00 | 262.00 | 514.00 | 766.00 | 1,018.00 | 1,270.00 |
| Machine costs | 94.66 | 108.88 | 201.10 | 201.10 | 201.10 | 201.10 | 208.92 | 208.92 |
| Irrigation water and power | 275.00 | 275.00 | 275.00 | 275.00 | 275.00 | 275.00 | 275.00 | 275.00 |
| Irrigation system | 0.00 | 2,500.00 | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 |
| Trellis system | 0.00 | 0.00 | 1,700.00 | 17.00 | 17.00 | 17.00 | 17.00 | 17.00 |
| Bee hives | 0.00 | 0.00 | 544.00 | 544.00 | 544.00 | 544.00 | 544.00 | 544.00 |
| Bird control | 0.00 | 0.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 |
| Portable toilets | 0.00 | 75.00 | 75.00 | 75.00 | 75.00 | 75.00 | 75.00 | 75.00 |
| Shop and machine shed | 13.25 | 13.25 | 13.25 | 13.25 | 13.25 | 13.25 | 13.25 | 13.25 |
| Miscellaneous & overhead | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 |
| Interest: operating capital | <u>264.33</u> | <u>50.51</u> | <u>123.23</u> | <u>150.33</u> | <u>228.39</u> | <u>302.61</u> | <u>386.68</u> | <u>429.14</u> |
| Total variable costs | \$13,480.58 | \$5,075.85 | \$7,984.74 | \$7,666.84 | \$11,647.90 | \$15,433.12 | \$19,720.77 | \$21,885.89 |
| Gross Income - Variable Cost | -\$13,480.58 | -\$5,075.85 | -\$4,759.74 | \$73.16 | \$3,832.10 | \$7,786.88 | \$11,239.23 | \$15,104.11 |
| Fixed cash costs (per acre): | | | | | | | | |
| Compliance | \$1,140.00 | \$1,990.00 | \$3,480.00 | \$3,480.00 | \$3,480.00 | \$3,480.00 | \$3,480.00 | \$3,480.00 |
| Property insurance | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 |
| Property taxes | <u>30.00</u> | <u>30.00</u> | <u>30.00</u> | <u>30.00</u> | <u>30.00</u> | <u>30.00</u> | <u>30.00</u> | <u>30.00</u> |
| Total fixed cash cost | \$1,195.00 | \$2,045.00 | \$3,535.00 | \$3,535.00 | \$3,535.00 | \$3,535.00 | \$3,535.00 | \$3,535.00 |
| Total cash cost | \$14,675.58 | \$7,120.85 | \$11,519.74 | \$11,201.84 | \$15,182.90 | \$18,968.12 | \$23,255.77 | \$25,420.89 |
| Net projected returns | -\$14,675.58 | -\$7,120.85 | -\$8,294.74 | -\$3,461.84 | \$297.10 | \$4,251.88 | \$7,704.23 | \$11,569.11 |
| Cumulative returns | -\$14,675.58 | -\$21,796.44 | -\$30,091.18 | -\$33,553.03 | -\$33,255.93 | -\$29,004.05 | -\$21,299.82 | -\$9,730.71 |

Table 7HH. Total Costs and Returns of Establishing and Producing an **Organic Market, Hand-Harvested** Blueberry Planting.

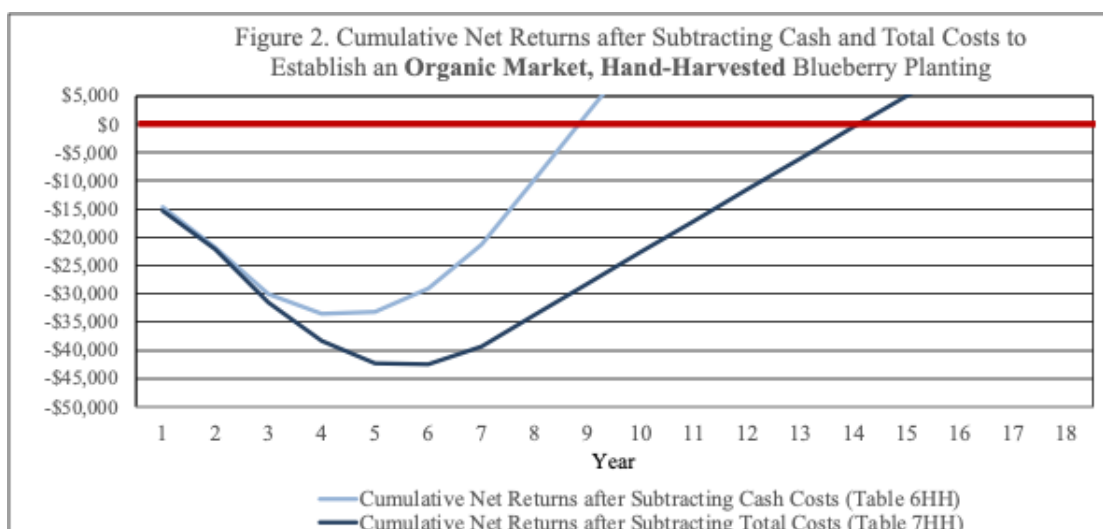
| Income: | Year 0 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Full Prod |
|---------------------------------|---------------|---------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Yield (lbs/acre) fresh | 0 | 0 | 1,500 | 3,600 | 7,200 | 10,800 | 14,400 | 16,200 |
| Processed | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1,800 |
| Price (dollars/lb) Fresh | \$0.00 | \$0.00 | \$2.15 | \$2.15 | \$2.15 | \$2.15 | \$2.15 | \$2.15 |
| Price (dollars/lb) Processed | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.20 |
| Gross Income (dollars/acre) | \$0.00 | \$0.00 | \$3,225.00 | \$7,740.00 | \$15,480.00 | \$23,220.00 | \$30,960.00 | \$36,990.00 |
| Variable Costs (per acre): | | | | | | | | |
| Custom work/Rental equip. | \$637.50 | \$62.50 | \$0.00 | \$0.00 | \$62.50 | \$0.00 | \$0.00 | \$308.83 |
| Blueberry bushes | 7,623.00 | 183.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Fertilizer | 850.00 | 850.00 | 850.00 | 850.00 | 850.00 | 850.00 | 1,050.00 | 1,050.00 |
| Soil test | 8.00 | 0.00 | 0.00 | 0.00 | 3.50 | 0.00 | 0.00 | 3.50 |
| Chemicals | 0.00 | 0.00 | 475.00 | 475.00 | 475.00 | 475.00 | 815.00 | 815.00 |
| Sawdust | 1,615.00 | 85.00 | 0.00 | 0.00 | 85.00 | 0.00 | 0.00 | 28.33 |
| Cover crop seed | 35.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Harvest labor | 0.00 | 0.00 | 1,275.00 | 3,060.00 | 6,120.00 | 9,180.00 | 12,240.00 | 13,770.00 |
| Pruning labor | 0.00 | 0.00 | 550.00 | 880.00 | 1,320.00 | 1,870.00 | 2,200.00 | 2,200.00 |
| General labor | 1,864.85 | 671.97 | 1,429.16 | 505.16 | 505.16 | 505.16 | 518.91 | 518.91 |
| Other harvest costs | 0.00 | 0.00 | 115.00 | 262.00 | 514.00 | 766.00 | 1,018.00 | 1,270.00 |
| Machine costs | 94.66 | 108.88 | 201.10 | 201.10 | 201.10 | 201.10 | 208.92 | 208.92 |
| Irrigation water and power | 275.00 | 275.00 | 275.00 | 275.00 | 275.00 | 275.00 | 275.00 | 275.00 |
| Irrigation system | 0.00 | 0.00 | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 |
| Trellis system | 0.00 | 0.00 | 0.00 | 17.00 | 17.00 | 17.00 | 17.00 | 17.00 |
| Bee hives | 0.00 | 0.00 | 544.00 | 544.00 | 544.00 | 544.00 | 544.00 | 544.00 |
| Bird control | 0.00 | 0.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 |
| Portable toilets | 0.00 | 75.00 | 75.00 | 75.00 | 75.00 | 75.00 | 75.00 | 75.00 |
| Shop and machine shed | 13.25 | 13.25 | 13.25 | 13.25 | 13.25 | 13.25 | 13.25 | 13.25 |
| Miscellaneous & overhead | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 |
| Interest: operating capital | <u>264.33</u> | <u>50.51</u> | <u>123.23</u> | <u>150.33</u> | <u>228.39</u> | <u>302.61</u> | <u>386.68</u> | <u>429.14</u> |
| Total variable costs | \$13,480.58 | \$2,575.85 | \$6,284.74 | \$7,666.84 | \$11,647.90 | \$15,433.12 | \$19,720.77 | \$21,885.89 |
| Gross revenue - Variable costs | -\$13,480.58 | -\$2,575.85 | -\$3,059.74 | \$73.16 | \$3,832.10 | \$7,786.88 | \$11,239.23 | \$15,104.11 |
| Fixed costs | | | | | | | | |
| Compliance | \$1,140.00 | \$1,990.00 | \$3,480.00 | \$3,480.00 | \$3,480.00 | \$3,480.00 | \$3,480.00 | \$3,480.00 |
| Property insurance | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 |
| Property taxes | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 |
| Depreciation and Interest | | | | | | | | |
| Machinery and Equipment | 28.44 | 302.40 | 320.01 | 217.25 | 690.81 | 690.81 | 735.12 | 735.12 |
| Pickup and ATV | 72.96 | 72.96 | 72.96 | 72.96 | 72.96 | 72.96 | 72.96 | 72.96 |
| Irrigation and Trellis Systems | 0.00 | 187.00 | 286.41 | 286.41 | 286.41 | 286.41 | 286.41 | 286.41 |
| Shop and Machine Shed | 24.17 | 24.17 | 24.17 | 24.17 | 24.17 | 24.17 | 24.17 | 24.17 |
| Land Interest Charge | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 |
| Interest on Establishment Costs | <u>0.00</u> | <u>924.07</u> | <u>1,477.96</u> | <u>2,142.53</u> | <u>2,550.84</u> | <u>2,786.53</u> | <u>2,799.07</u> | <u>4,308.54</u> |
| Total fixed costs | \$1,920.57 | \$4,155.60 | \$6,316.51 | \$6,878.32 | \$7,760.20 | \$7,995.88 | \$8,052.73 | \$9,562.20 |
| Total costs | \$15,401.15 | \$6,731.46 | \$12,601.26 | \$14,545.17 | \$19,408.10 | \$23,429.01 | \$27,773.49 | \$31,448.08 |
| Net projected returns | -\$15,401.15 | -\$6,731.46 | -\$9,376.26 | -\$6,805.17 | -\$3,928.10 | -\$209.01 | \$3,186.51 | \$5,541.92 |
| Cumulative Returns ¹ | -\$15,401.15 | -\$22,132.61 | -\$31,508.86 | -\$38,314.03 | -\$42,242.13 | -\$42,451.13 | -\$39,264.63 | -\$33,722.71 |

¹Unrecovered establishment costs at the end of year 6 are amortized over the remaining years of assumed life of the berry planting. This amortized cost is shown in the Interest on establishment costs line at full production.

Table 8HH. Cash and Total Costs to Establish an **Organic Market, Hand-Harvested** Blueberry Planting for the First Six Years, \$/acre

| Cost Item | Cash Costs ¹ | Percent of Total | Total Costs ¹ | Percent of Total |
|---|-------------------------|------------------|--------------------------|------------------|
| Plants | \$7,807 | 7.59% | \$7,807 | 5.16% |
| Sawdust | 1,813 | 1.76% | 1,813 | 1.20% |
| Irrigation system | \$2,554 | 2.48% | N/A | 0.00% |
| Trellis system | 1,700 | 1.65% | N/A | 0.00% |
| Fertilizer and chemicals | 10,730 | 10.43% | 10,730 | 7.09% |
| Harvest labor | 45,645 | 44.36% | 45,645 | 30.17% |
| Labor, not including harvest | 15,539 | 15.10% | 15,539 | 10.27% |
| Other harvest costs: hauling, commissions, etc. | 3,945 | 3.83% | 3,945 | 2.61% |
| Machine costs | 1,426 | 1.39% | 5,729 | 3.79% |
| Interest: Loans, establishment & land charges | 1,935 | 1.88% | 23,725 | 15.68% |
| Other | <u>9,801</u> | 9.53% | <u>36,350</u> | 24.03% |
| Totals | \$102,896 | | \$151,284 | |

¹The irrigation system and trellis are long-term assets that are cash expenditures in the year installed but, as an economic cost, are depreciated over the planting's life.



9HH. Hand-Harvest Organic Blueberries: Estimated Per Acre Returns Over Cash Costs at Varying Yields & Prices.

| | Pounds per Acre | | | | | | | | |
|----------------|-----------------|---------|---------|---------|---------|----------|----------|----------|----------|
| Fresh Price/Lb | 14,000 | 15,000 | 16,000 | 17,000 | 18,000 | 19,000 | 20,000 | 21,000 | 22,000 |
| \$1.76 | \$6,090 | \$6,994 | \$7,897 | \$8,801 | \$9,704 | \$10,608 | \$11,511 | \$12,414 | \$13,318 |
| 1.86 | 7,490 | 8,494 | 9,497 | 10,501 | 11,504 | 12,508 | 13,511 | 14,514 | 15,518 |
| 1.96 | 8,890 | 9,994 | 11,097 | 12,201 | 13,304 | 14,408 | 15,511 | 16,614 | 17,718 |
| 2.06 | 10,290 | 11,494 | 12,697 | 13,901 | 15,104 | 16,308 | 17,511 | 18,714 | 19,918 |
| 2.16 | 11,690 | 12,994 | 14,297 | 15,601 | 16,904 | 18,208 | 19,511 | 20,814 | 22,118 |
| 2.26 | 13,090 | 14,494 | 15,897 | 17,301 | 18,704 | 20,108 | 21,511 | 22,914 | 24,318 |
| 2.36 | 14,490 | 15,994 | 17,497 | 19,001 | 20,504 | 22,008 | 23,511 | 25,014 | 26,518 |

10HH. Hand-Harvest Organic Blueberries: Estimated Per Acre Returns Over Total Costs at Varying Yields & Prices.

| | Pounds per Acre | | | | | | | | |
|----------------|-----------------|----------|----------|--------|--------|---------|---------|---------|---------|
| Fresh Price/Lb | 14,000 | 15,000 | 16,000 | 17,000 | 18,000 | 19,000 | 20,000 | 21,000 | 22,000 |
| \$1.76 | -\$3,472 | -\$2,568 | -\$1,665 | -\$762 | \$142 | \$1,045 | \$1,949 | \$2,852 | \$3,756 |
| 1.86 | -2,072 | -1,068 | -65 | 938 | 1,942 | 2,945 | 3,949 | 4,952 | 5,956 |
| 1.96 | -672 | 432 | 1,535 | 2,638 | 3,742 | 4,845 | 5,949 | 7,052 | 8,156 |
| 2.06 | 728 | 1,932 | 3,135 | 4,338 | 5,542 | 6,745 | 7,949 | 9,152 | 10,356 |
| 2.16 | 2,128 | 3,432 | 4,735 | 6,038 | 7,342 | 8,645 | 9,949 | 11,252 | 12,556 |
| 2.26 | 3,528 | 4,932 | 6,335 | 7,738 | 9,142 | 10,545 | 11,949 | 13,352 | 14,756 |
| 2.36 | 4,928 | 6,432 | 7,935 | 9,438 | 10,942 | 12,445 | 13,949 | 15,452 | 16,956 |

Results of establishing and producing organic market, machine-harvested blueberries in the Willamette Valley, Oregon

Cash flow analysis

A cash flow analysis for establishing an organic market, machine-harvested blueberry planting is presented in Table 6MH, page 14. It shows the cash costs required to develop this type of planting. Cash costs include blueberry bushes, irrigation and trellis systems, fertilizer, chemicals, sawdust, labor, beehives, bird control, machinery repairs, fuel, lube, and oil, irrigation water assessments, operating (short-term) interest, compliance costs, machinery and whole-farm insurance, and property taxes. The income, variable, and cash fixed costs are shown for the seven establishment years plus the first full production year.

Total variable costs are \$13,481 in year 0, with an additional \$2,045 of cash fixed costs for a total cash cost of \$15,526 per acre. A positive cash flow begins at year four with gross income exceeding total cash costs by \$2,018 per acre. The planting does return a sufficient net returns to pay all previous years' cash costs with \$1,518 per acre over and above prior expenses.

Table 8MH, page 16, shows the major cost components of total cash costs. Labor, other than harvest, represents 23 percent of the cash needed to establish this planting. Harvest costs (which include hauling, commissions, etc.) are the second largest item, making up 17 percent of the total cash costs.

The remainder is in the other cost categories: fertilizer and chemicals, the category of other, and blueberry plants, which are 16, 14, and 11 percent,

respectively. The remaining six items comprise about 19 percent of total cash costs.

Total costs and returns

The total costs and returns for establishing an organic market, machine-harvested blueberry planting is in Table 7MH, page 15. Total costs include all cash out-of-pocket and ownership costs, which consist of a combination of principal and interest payments and a return on investment, or both, to the grower for machinery, land, and funds to pay previous years' establishment costs. The gross income and variable cash costs remain the same as in Table 6MH, except the irrigation and trellis systems are amortized over their productive life and included in fixed costs.

Net projected returns (gross income minus total costs) become positive at year 5, with total costs exceeding gross income by \$2,123 per acre. At the end of the establishment period, \$22,057 per acre remains to repay all previous costs. This cost is amortized over 18 years as an annual payment of \$4,030 per acre, including principal and interest, to recover the capital investment of establishing the orchard.

The major cost components as a percent of total cost are shown in Table 8MH, page 16. When all expenses are included, the top item is the category of other with 31 percent of total costs, followed by interest charges on loans, establishment, and land, and labor, not including harvest, which are 20, and 13 percent, respectively. Next, harvest costs (which include hauling, commissions, etc.) are 10 percent. The remaining five items comprise about 26 percent of the total costs.

*Summary of establishing organic market,
machine-harvest blueberries*

Figure 3, page 16, shows the cumulative cash and total costs of establishing an organic market of machine-harvested blueberries. The light and darker blue lines denote these results. The cumulative net returns after subtracting cash costs turns positive by \$1,518 per acre in year 8, and the cumulative net returns after subtracting total costs become positive in 11 years with \$9,640.

Appendix B, Tables 13MH-20MH, pages 27-34, contains the annual cost and return budgets for establishing this blueberry planting.

Sensitivity Analysis

Table 9MH, page 17, shows the estimated per-acre returns over cash costs at varying yields and prices when the blueberry planting is in full production. The return over cash cost is \$19,849 per acre at our assumed yield and price of 18,000 pounds and average price of \$1.68 per pound. Prices increase or decrease by \$0.10 per pound and yields by 1,000 pounds per acre. In this sensitivity analysis, returns per acre are positive at all yields and prices.

Table 10MH shows the estimated per-acre returns over total costs at varying yields and prices when the orchard is in full production. The return on total cost is \$10,566 per acre at our assumed yield and price of 18,000 pounds and \$1.68 per pound. In this sensitivity analysis, returns per acre are positive at all yields and prices.

Table 6MH. Cash Costs and Returns of Establishing and Producing an **Organic Market, Machine-Harvested** Blueberry Planting.

| Income: | Year 0 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Full Prod |
|------------------------------|---------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Yield (lbs/acre) fresh | 0 | 0 | 1,500 | 3,600 | 3,600 | 5,300 | 7,200 | 9,000 |
| Processed | 0 | 0 | 0 | 0 | 3,600 | 5,300 | 7,200 | 9,000 |
| Price (dollars/lb) Fresh | \$0.00 | \$0.00 | \$2.15 | \$2.15 | \$2.15 | \$2.15 | \$2.15 | \$2.15 |
| Price (dollars/lb) Processed | <u>0.00</u> | <u>0.00</u> | <u>1.20</u> | <u>1.20</u> | <u>1.20</u> | <u>1.20</u> | <u>1.20</u> | <u>1.20</u> |
| Gross Income (dollars/acre) | \$0.00 | \$0.00 | \$3,225.00 | \$7,740.00 | \$12,060.00 | \$17,755.00 | \$24,120.00 | \$30,150.00 |
| Variable Costs (per acre): | | | | | | | | |
| Custom work/Rental equipt. | \$637.50 | \$62.50 | \$0.00 | \$0.00 | \$62.50 | \$0.00 | \$0.00 | \$20.83 |
| Blueberry bushes | 7,623.00 | 183.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Fertilizer | 850.00 | 850.00 | 850.00 | 850.00 | 850.00 | 850.00 | 1,050.00 | 1,050.00 |
| Soil test | 8.00 | 0.00 | 0.00 | 0.00 | 3.50 | 0.00 | 0.00 | 3.50 |
| Chemicals | 0.00 | 0.00 | 475.00 | 475.00 | 475.00 | 475.00 | 815.00 | 815.00 |
| Sawdust | 1,615.00 | 85.00 | 0.00 | 0.00 | 85.00 | 0.00 | 0.00 | 28.33 |
| Cover crop seed | 35.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Harvest labor | 0.00 | 0.00 | 1,275.00 | 3,060.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Pruning labor | 0.00 | 0.00 | 550.00 | 880.00 | 1,320.00 | 1,870.00 | 2,200.00 | 2,200.00 |
| General labor | 1,864.85 | 671.97 | 1,429.16 | 505.16 | 505.16 | 505.16 | 518.91 | 518.91 |
| Harvest costs | 0.00 | 0.00 | 115.00 | 262.00 | 1,666.00 | 2,448.00 | 3,322.00 | 4,150.00 |
| Machine costs | 94.66 | 108.88 | 201.10 | 201.10 | 201.10 | 201.10 | 208.92 | 208.92 |
| Irrigation water and power | 275.00 | 275.00 | 275.00 | 275.00 | 275.00 | 275.00 | 275.00 | 275.00 |
| Irrigation sytem | 0.00 | 2,500.00 | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 |
| Trellis system | 0.00 | 0.00 | 1,700.00 | 17.00 | 17.00 | 17.00 | 17.00 | 17.00 |
| Bee hives | 0.00 | 0.00 | 544.00 | 544.00 | 544.00 | 544.00 | 544.00 | 544.00 |
| Bird control | 0.00 | 0.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 |
| Portable toilets | 0.00 | 75.00 | 75.00 | 75.00 | 75.00 | 75.00 | 75.00 | 75.00 |
| Shop and machine shed | 13.25 | 13.25 | 13.25 | 13.25 | 13.25 | 13.25 | 13.25 | 13.25 |
| Miscellaneous & overhead | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 |
| Interest: operating capital | <u>264.33</u> | <u>50.51</u> | <u>123.23</u> | <u>150.33</u> | <u>129.03</u> | <u>152.65</u> | <u>187.96</u> | <u>205.58</u> |
| Total variable costs | \$13,480.58 | \$5,075.85 | \$7,984.74 | \$7,666.84 | \$6,580.54 | \$7,785.16 | \$9,586.05 | \$10,484.33 |
| Gross Income - Variable Cost | -\$13,480.58 | -\$5,075.85 | -\$4,759.74 | \$73.16 | \$5,479.46 | \$9,969.84 | \$14,533.95 | \$19,665.67 |
| Fixed cash costs (per acre): | | | | | | | | |
| Compliance | \$1,990.00 | \$2,090.00 | \$3,480.00 | \$3,480.00 | \$3,480.00 | \$3,480.00 | \$3,480.00 | \$3,480.00 |
| Property insurance | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 |
| Property taxes | <u>30.00</u> | <u>30.00</u> | <u>30.00</u> | <u>30.00</u> | <u>30.00</u> | <u>30.00</u> | <u>30.00</u> | <u>30.00</u> |
| Total fixed cash cost | \$2,045.00 | \$2,145.00 | \$3,535.00 | \$3,535.00 | \$3,535.00 | \$3,535.00 | \$3,535.00 | \$3,535.00 |
| Total cash cost | \$15,525.58 | \$7,220.85 | \$11,519.74 | \$11,201.84 | \$10,115.54 | \$11,320.16 | \$13,121.05 | \$14,019.33 |
| Net projected returns | -\$15,525.58 | -\$7,220.85 | -\$8,294.74 | -\$3,461.84 | \$1,944.46 | \$6,434.84 | \$10,998.95 | \$16,130.67 |
| Cumulative returns | -\$15,525.58 | -\$22,746.44 | -\$31,041.18 | -\$34,503.03 | -\$32,558.57 | -\$26,123.73 | -\$15,124.78 | \$1,005.89 |

Table 7MH. Total Costs and Returns of Establishing and Producing an **Organic Market, Machine-Harvested** Blueberry Planting.

| Income: | Year 0 | Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 | Full Prod |
|---------------------------------|---------------|---------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Yield (lbs/acre) fresh | 0 | 0 | 1,500 | 3,600 | 3,600 | 5,300 | 7,200 | 9,000 |
| Processed | 0 | 0 | 0 | 0 | 3,600 | 5,300 | 7,200 | 9,000 |
| Price (dollars/lb) Fresh | \$0.00 | \$0.00 | \$2.15 | \$2.15 | \$2.15 | \$2.15 | \$2.15 | \$2.15 |
| Price (dollars/lb) Processed | <u>0.00</u> | <u>0.00</u> | <u>1.20</u> | <u>1.20</u> | <u>1.20</u> | <u>1.20</u> | <u>1.20</u> | <u>1.20</u> |
| Gross Income (dollars/acre) | \$0.00 | \$0.00 | \$3,225.00 | \$7,740.00 | \$12,060.00 | \$17,755.00 | \$24,120.00 | \$30,150.00 |
| Variable Costs (per acre): | | | | | | | | |
| Custom work/Rental equip. | \$637.50 | \$62.50 | \$0.00 | \$0.00 | \$62.50 | \$0.00 | \$0.00 | \$20.83 |
| Blueberry bushes | 7,623.00 | 183.75 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Fertilizer | 850.00 | 850.00 | 850.00 | 850.00 | 850.00 | 850.00 | 1,050.00 | 1,050.00 |
| Soil test | 8.00 | 0.00 | 0.00 | 0.00 | 3.50 | 0.00 | 0.00 | 3.50 |
| Chemicals | 0.00 | 0.00 | 475.00 | 475.00 | 475.00 | 475.00 | 815.00 | 815.00 |
| Sawdust | 1,615.00 | 85.00 | 0.00 | 0.00 | 85.00 | 0.00 | 0.00 | 28.33 |
| Cover crop seed | 35.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Harvest labor | 0.00 | 0.00 | 1,275.00 | 3,060.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Pruning labor | 0.00 | 0.00 | 550.00 | 880.00 | 1,320.00 | 1,870.00 | 2,200.00 | 2,200.00 |
| General labor | 1,864.85 | 671.97 | 1,429.16 | 505.16 | 505.16 | 505.16 | 518.91 | 518.91 |
| Harvest costs | 0.00 | 0.00 | 115.00 | 262.00 | 1,666.00 | 2,448.00 | 3,322.00 | 4,150.00 |
| Machine costs | 94.66 | 108.88 | 201.10 | 201.10 | 201.10 | 201.10 | 208.92 | 208.92 |
| Irrigation water and power | 275.00 | 275.00 | 275.00 | 275.00 | 275.00 | 275.00 | 275.00 | 275.00 |
| Irrigation sytem | 0.00 | 0.00 | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 | 9.00 |
| Trellis system | 0.00 | 0.00 | 0.00 | 17.00 | 17.00 | 17.00 | 17.00 | 17.00 |
| Bee hives | 0.00 | 0.00 | 544.00 | 544.00 | 544.00 | 544.00 | 544.00 | 544.00 |
| Bird control | 0.00 | 0.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 | 150.00 |
| Portable toilets | 0.00 | 75.00 | 75.00 | 75.00 | 75.00 | 75.00 | 75.00 | 75.00 |
| Shop and machine shed | 13.25 | 13.25 | 13.25 | 13.25 | 13.25 | 13.25 | 13.25 | 13.25 |
| Miscellaneous & overhead | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 | 200.00 |
| Interest: operating capital | <u>264.33</u> | <u>50.51</u> | <u>123.23</u> | <u>150.33</u> | <u>129.03</u> | <u>152.65</u> | <u>187.96</u> | <u>205.58</u> |
| Total variable costs | \$13,480.58 | \$2,575.85 | \$6,284.74 | \$7,666.84 | \$6,580.54 | \$7,785.16 | \$9,586.05 | \$10,484.33 |
| Gross revenue - Variable costs | -\$13,480.58 | -\$2,575.85 | -\$3,059.74 | \$73.16 | \$5,479.46 | \$9,969.84 | \$14,533.95 | \$19,665.67 |
| Fixed costs | | | | | | | | |
| Compliance | \$1,990.00 | \$2,090.00 | \$3,480.00 | \$3,480.00 | \$3,480.00 | \$3,480.00 | \$3,480.00 | \$3,480.00 |
| Property insurance | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 | 25.00 |
| Property taxes | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 | 30.00 |
| Depreciation and Interest | | | | | | | | |
| Machinery and Equipment | 28.44 | 302.40 | 320.01 | 217.25 | 690.81 | 690.81 | 735.12 | 735.12 |
| Pickup and ATV | 72.96 | 72.96 | 72.96 | 72.96 | 72.96 | 72.96 | 72.96 | 72.96 |
| Irrigation and Trellis Systems | 0.00 | 187.00 | 286.41 | 137.50 | 286.41 | 286.41 | 286.41 | 286.41 |
| Shop and Machine Shed | 24.17 | 24.17 | 24.17 | 24.17 | 24.17 | 24.17 | 24.17 | 24.17 |
| Land Interest Charge | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 | 600.00 |
| Interest on Establishment Costs | <u>0.00</u> | <u>975.07</u> | <u>1,538.02</u> | <u>2,206.20</u> | <u>2,609.39</u> | <u>2,749.75</u> | <u>2,629.10</u> | <u>4,046.92</u> |
| Total fixed costs | \$2,770.57 | \$4,306.60 | \$6,376.57 | \$6,793.07 | \$7,818.74 | \$7,959.10 | \$7,882.76 | \$9,300.58 |
| Total costs | \$16,251.15 | \$6,882.46 | \$12,661.32 | \$14,459.92 | \$14,399.29 | \$15,744.27 | \$17,468.81 | \$19,784.90 |
| Net projected returns | -\$16,251.15 | -\$6,882.46 | -\$9,436.32 | -\$6,719.92 | -\$2,339.29 | \$2,010.73 | \$6,651.19 | \$10,365.10 |
| Cumulative Returns ¹ | -\$16,251.15 | -\$23,133.61 | -\$32,569.92 | -\$39,289.84 | -\$41,629.13 | -\$39,618.39 | -\$32,967.20 | -\$22,602.10 |

¹Unrecovered establishment costs at the end of year 6 are amortized over the remaining years of assumed life of the berry planting. This amortized cost is shown in the Interest on establishment costs line at full production.

Table 8MH. Cash and Total Costs to Establish an **Organic Market, Machine-Harvested** Blueberry Planting for the First Seven Years, \$/acre

| Cost Item | Cash Costs ¹ | Percent of Total | Economic Costs ¹ | Percent of Total |
|---|-------------------------|------------------|-----------------------------|------------------|
| Plants | \$7,807 | 11.37% | \$7,807 | 6.64% |
| Sawdust | 1,813 | 2.64% | 1,813 | 1.54% |
| Irrigation system | \$2,554 | 3.72% | N/A | 0.00% |
| Trellis system | 1,700 | 2.48% | N/A | 0.00% |
| Fertilizer and chemicals | 10,730 | 15.63% | 10,730 | 9.12% |
| Harvest labor | 4,335 | 6.32% | 4,335 | 3.69% |
| Labor, not including harvest | 15,539 | 22.64% | 15,539 | 13.21% |
| Harvest costs: hauling, commissions, etc. | 11,963 | 17.43% | 11,963 | 10.17% |
| Machine costs | 1,426 | 2.08% | 5,729 | 4.87% |
| Interest: Loans, establishment & land charges | 1,264 | 1.84% | 22,818 | 19.40% |
| Other | <u>9,513</u> | 13.86% | <u>36,863</u> | 31.35% |
| Totals | \$68,644 | | \$117,598 | |

¹The irrigation system and trellis are long-term assets that are cash expenditures in the year installed but, as an economic cost, are depreciated over the planting's life.

Figure 3. Cumulative Net Returns after Subtracting Cash and Total Costs to Establish an **Organic Market, Machine-Harvested** Blueberry Planting

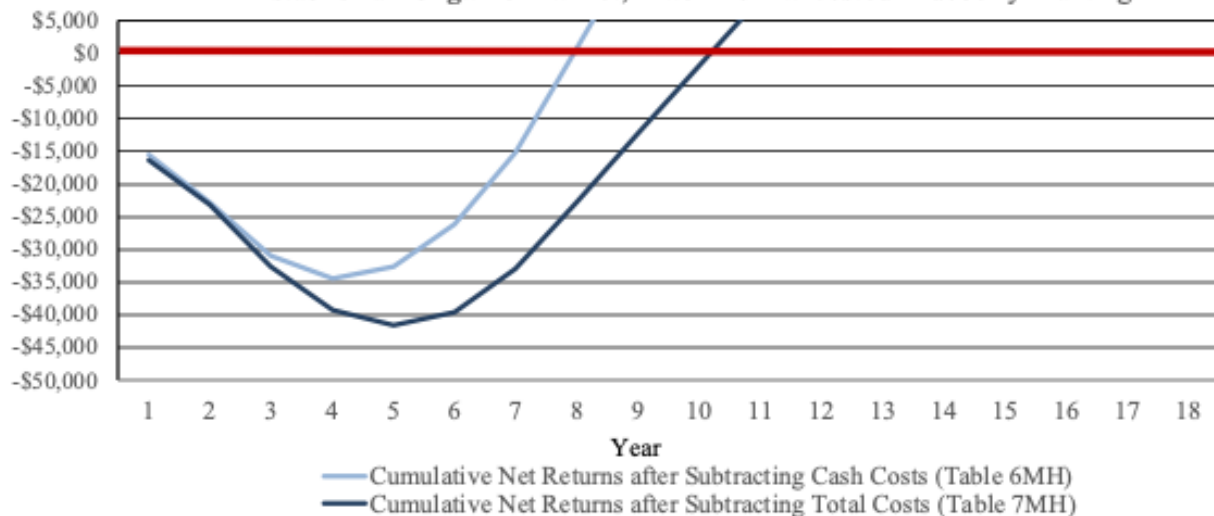


Table 9MH. Organic Market, Machine-Harvested Blueberries: Estimated Per Acre Returns Over Cash Costs at Varying Yields & Prices at Full Production.

| Fresh Price/Lb | Pounds per Acre | | | | | | | | |
|----------------|-----------------|----------|----------|----------|----------|----------|----------|----------|----------|
| | 14,000 | 15,000 | 16,000 | 17,000 | 18,000 | 19,000 | 20,000 | 21,000 | 22,000 |
| \$1.85 | \$16,481 | \$18,111 | \$19,740 | \$21,370 | \$22,999 | \$24,629 | \$26,258 | \$27,888 | \$29,517 |
| 1.95 | 17,881 | 19,611 | 21,340 | 23,070 | 24,799 | 26,529 | 28,258 | 29,988 | 31,717 |
| 2.05 | 19,281 | 21,111 | 22,940 | 24,770 | 26,599 | 28,429 | 30,258 | 32,088 | 33,917 |
| 2.15 | 20,681 | 22,611 | 24,540 | 26,470 | 28,399 | 30,329 | 32,258 | 34,188 | 36,117 |
| 2.25 | 22,081 | 24,111 | 26,140 | 28,170 | 30,199 | 32,229 | 34,258 | 36,288 | 38,317 |
| 2.35 | 23,481 | 25,611 | 27,740 | 29,870 | 31,999 | 34,129 | 36,258 | 38,388 | 40,517 |
| 2.45 | 24,881 | 27,111 | 29,340 | 31,570 | 33,799 | 36,029 | 38,258 | 40,488 | 42,717 |

Table 10MH. Organic Market, Machine-Harvested Blueberries: Estimated Per Acre Returns Over Total Costs at Varying Yields & Prices at Full Production.

| Fresh Price/Lb | Pounds per Acre | | | | | | | | |
|----------------|-----------------|---------|----------|----------|----------|----------|----------|----------|----------|
| | 14,000 | 15,000 | 16,000 | 17,000 | 18,000 | 19,000 | 20,000 | 21,000 | 22,000 |
| \$1.85 | \$7,998 | \$9,627 | \$11,257 | \$12,886 | \$14,516 | \$16,145 | \$17,775 | \$19,404 | \$21,033 |
| 1.95 | 9,398 | 11,127 | 12,857 | 14,586 | 16,316 | 18,045 | 19,775 | 21,504 | 23,233 |
| 2.05 | 10,798 | 12,627 | 14,457 | 16,286 | 18,116 | 19,945 | 21,775 | 23,604 | 25,433 |
| 2.15 | 12,198 | 14,127 | 16,057 | 17,986 | 19,916 | 21,845 | 23,775 | 25,704 | 27,633 |
| 2.25 | 13,598 | 15,627 | 17,657 | 19,686 | 21,716 | 23,745 | 25,775 | 27,804 | 29,833 |
| 2.35 | 14,998 | 17,127 | 19,257 | 21,386 | 23,516 | 25,645 | 27,775 | 29,904 | 32,033 |
| 2.45 | 16,398 | 18,627 | 20,857 | 23,086 | 25,316 | 27,545 | 29,775 | 32,004 | 34,233 |

Table 11MH. Organic Market, Machine-Harvested Blueberries: Estimated Per Acre Returns Over Cash Costs at Varying Harvest Costs and Percentage of Fresh Market Fruit at Full Production.

| Harvest Cost/Lb | Percent Fresh Market Fruit | | | | | | | |
|-----------------|----------------------------|----------|----------|----------|----------|----------|----------|----------|
| | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% |
| 0.14 | \$16,613 | \$18,323 | \$20,033 | \$21,743 | \$23,453 | \$25,163 | \$26,873 | \$28,583 |
| 0.15 | 16,429 | 18,139 | 19,849 | 21,559 | 23,269 | 24,979 | 26,689 | 28,399 |
| 0.16 | 16,246 | 17,956 | 19,666 | 21,376 | 23,086 | 24,796 | 26,506 | 28,216 |
| 0.17 | 16,062 | 17,772 | 19,482 | 21,192 | 22,902 | 24,612 | 26,322 | 28,032 |
| 0.18 | 15,878 | 17,588 | 19,298 | 21,008 | 22,718 | 24,428 | 26,138 | 27,848 |
| 0.19 | 15,695 | 17,405 | 19,115 | 20,825 | 22,535 | 24,245 | 25,955 | 27,665 |
| 0.20 | 15,511 | 17,221 | 18,931 | 20,641 | 22,351 | 24,061 | 25,771 | 27,481 |

Table 12MH. Organic Market, Machine-Harvested Blueberries: Estimated Per Acre Returns Over Total Costs at Varying Harvest Costs and Percentage of Fresh Market Fruit at Full Production.

| Harvest Cost/Lb | Percent Fresh Harvest | | | | | | | |
|-----------------|-----------------------|---------|----------|----------|----------|----------|----------|----------|
| | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% |
| 0.14 | \$7,027 | \$8,897 | \$10,767 | \$12,637 | \$14,507 | \$16,377 | \$18,247 | \$20,116 |
| 0.15 | 6,826 | 8,696 | 10,566 | 12,436 | 14,306 | 16,176 | 18,046 | 19,916 |
| 0.16 | 6,625 | 8,495 | 10,365 | 12,235 | 14,105 | 15,975 | 17,845 | 19,715 |
| 0.17 | 6,424 | 8,294 | 10,164 | 12,034 | 13,904 | 15,774 | 17,644 | 19,514 |
| 0.18 | 6,224 | 8,094 | 9,964 | 11,834 | 13,703 | 15,574 | 17,443 | 19,313 |
| 0.19 | 6,023 | 7,893 | 9,763 | 11,633 | 13,503 | 15,373 | 17,243 | 19,113 |
| 0.20 | 5,822 | 7,692 | 9,562 | 11,432 | 13,302 | 15,172 | 17,042 | 18,912 |

Conclusions

This study's results show an increase in production inputs in recent years compared to previous cost-of-production studies found <https://appliedecon.oregonstate.edu/oaeb>.

Harvest labor is by far the highest-cost input for growers using hand-harvesting methods. However, these costs can be reduced by implementing machine-harvesting methods. Tables 11MH and 12MH, page 17, show the results of net returns when varying the percent of fresh fruit marketed at varying harvest costs. At 50 percent of the fruit sold in the fresh market and harvesting expenses at \$0.16 per pound, due to rounding errors within calculations, the net returns are close to the same as in Tables 9MH and 10MH. Interestingly, per acre, net returns increase by \$1,710 and \$1,870 per acre when including cash and total costs, respectively. However, the per-acre net returns decrease by \$184 and \$201, respectively, with a decrease of \$0.10 in harvesting costs.

These two tables illustrate the importance of focusing on research for blueberry plants and varieties that can be mechanically harvested. From the grower's perspective, having sufficient liquidity, solvency, and repayment capacity to finance a machine harvester through cash flows or loans could be challenging. Thus, smaller growers may be required to custom-hire the harvest operations.

This cost of establishment study will provide helpful information to fresh and processed market blueberry producers and investors considering planting berries. However, like any other enterprise budget, putting your current costs in the budget will make it more meaningful. Many tools are available for university farm management specialists and computer software programs such as *AgProfitTM*. This program is available as a download for free at (www.agtools.org). Contact your local Extension Agent to find the latest tools and budget information.

Growers must remember the impact that a particular enterprise, such as a blueberry planting, can have on the overall financial stability of the farm business. Financial managers can recommend planting one crop over another to improve profitability. Still, the financial requirements to complete the planting could jeopardize cash flows, increase the debt-to-asset ratio, and diminish the solvency of the farm. There are many economic and financial considerations before such decisions are made. Seeking advice from university Extension and research faculty, industry representatives, or consultants can help in those decisions and keep your farm profitable.

APPENDIX A

Enterprise Budgets: Organic Market, Hand-harvested Blueberries in the Willamette Valley, Oregon

| Table 11HH. Year 0, Blueberries, Organic Market, Hand Harvest, \$/acre, economic costs and returns. | | | | | |
|---|--------------|-------------------|----------------|--------------------|--------------------|
| VARIABLE CASH COSTS | Description | Labor | Machinery | Materials | Total |
| Soil sample (every 4th yr) | | | | \$8.00 | \$8.00 |
| Land Preparation, Custom Operations | | | | | 50.00 |
| Rip, Plow, Drag, and Roll | 2.00 times | | | 50.00 | |
| Sawdust Application (every 3rd yr) | | | | | 1,677.50 |
| Sawdust | 19.00 units | | | 1,615.00 | |
| Loader Rental | | | | 62.50 | |
| Fertilization | | | | | 856.81 |
| Fertilizer Spreader | 1.00 times | 4.85 | 1.96 | | |
| Fertilizer | | | | 850.00 | |
| Incorporate Fertilizer | | | | | 15.00 |
| Rototiller, Rental | | | | 15.00 | |
| Pre-plant | | | | | 544.00 |
| Mark Field | 2.00 hours | \$44.00 | | | |
| Shape Beds, Custom | | | | 500.00 | |
| Planting Bushes | | | | | 8,723.00 |
| Labor | 50.00 hours | 1,100.00 | | | |
| Blueberry Bushes | 1,452 plants | | | 7,623.00 | |
| Post-plant | | | | | 55.00 |
| Drag Field | | 12.00 | 8.00 | | |
| Seed Cover Crop | | | | 35.00 | |
| Irrigation | | | | | 989.00 |
| Labor | 32.00 hours | 704.00 | | | |
| Handline Rental | | | | 10.00 | |
| Water and Power | | | | 275.00 | |
| Pickup | | | 53.98 | | 53.98 |
| ATV | | | 30.72 | | 30.72 |
| Shop and Machine Shed | | | | 13.25 | 13.25 |
| Miscellaneous and Overhead | | | | 200.00 | 200.00 |
| Interest: Operating Capital | 6 months | | | 264.33 | 264.33 |
| Total variable costs | | \$1,864.85 | \$94.66 | \$11,521.08 | \$13,480.58 |
| FIXED CASH COSTS | | | | Unit | Total |
| Compliance | | | | acre | \$1,140.00 |
| Property Insurance | | | | acre | 25.00 |
| Property Taxes | | | | acre | 30.00 |
| Total fixed cash costs | | | | | \$1,195.00 |
| FIXED NON-CASH COSTS | | | | Unit | Total |
| Depreciation and Interest | | | | | |
| Machinery and Equipment | | | | acre | \$28.44 |
| Pickup and ATV | | | | acre | 72.96 |
| Shop and Machine Shed | | | | acre | 24.17 |
| Land Interest Charge | | | | acre | 600.00 |
| Total fixed non-cash costs | | | | | \$725.57 |
| Total fixed costs | | | | | \$1,920.57 |
| Total of all costs per acre | | | | | \$15,401.15 |

Table 12HH. Year 1, Blueberries, Organic Market, Hand Harvest, \$/acre, economic costs and returns.

| VARIABLE CASH COSTS | Description | Labor | Machinery | Materials | Total |
|------------------------------------|-------------|----------|-----------|------------|------------|
| Weed control | | | | | 396.00 |
| Hand Weeding | 18.00 hours | 396.00 | | | |
| Sawdust Application (every 3rd yr) | | | | | 147.50 |
| Sawdust | 11.00 units | | | 85.00 | |
| Loader Rental | | | | 62.50 | |
| Fertilization | | | | | 922.81 |
| Fertilizer Spreader | 1.00 times | 4.85 | 1.96 | | |
| Fertigation labor | 3.00 hours | 66.00 | | | |
| Fertilizer | | | | 850.00 | |
| Irrigation | | | | | 350.00 |
| Labor | 3.00 hours | 66.00 | | | |
| Repairs & Maintenance | | | 9.00 | | |
| Water and Power | | | | 275.00 | |
| Irrigation System | | | | 2,500.00 | |
| Planting Bushes | | | | | 293.75 |
| Labor | 5.00 hours | 110.00 | | | |
| Blueberry Bushes | 35 plants | | | 183.75 | |
| Mower | 3.00 times | 29.11 | 13.23 | | 42.34 |
| Portable Toilet | | | | 75.00 | 75.00 |
| Pickup | | | 53.98 | | 53.98 |
| ATV | | | 30.72 | | 30.72 |
| Shop and Machine Shed | | | | 13.25 | 13.25 |
| Miscellaneous and Overhead | | | | 200.00 | 200.00 |
| Interest: Operating Capital | 6 months | | | 50.51 | 50.51 |
| Total variable costs | | \$671.97 | \$108.88 | \$4,295.01 | \$5,075.85 |
| FIXED CASH COSTS | | | | Unit | Total |
| Compliance | | | | acre | \$1,990.00 |
| Property Insurance | | | | acre | 25.00 |
| Property Taxes | | | | acre | 30.00 |
| Total fixed cash costs | | | | | \$2,045.00 |
| FIXED NON-CASH COSTS | | | | Unit | Total |
| Depreciation and Interest | | | | | |
| Machinery and Equipment | | | | acre | \$302.40 |
| Pickup and ATV | | | | acre | 72.96 |
| Irrigation System | | | | acre | 187.00 |
| Shop and Machine Shed | | | | acre | 24.17 |
| Land Interest Charge | | | | acre | 600.00 |
| Amortized Establishment Costs | | | | acre | 924.07 |
| Total fixed non-cash costs | | | | | \$2,110.60 |
| Total fixed costs | | | | | \$4,155.60 |
| Total of all costs per acre | | | | | \$9,231.46 |

Table 13HH. Year 2, Blueberries, Organic Market, Hand Harvest, \$/acre, economic costs and returns.

| TOTAL GROSS INCOME | | | Quantity | Unit | \$/Unit | Total | Price/lb | |
|--|--|--|----------------|------------|-----------|------------|--------------|----------|
| Blueberries, fresh market | | | 1,500 | lbs | \$2.15 | 3,225 | \$2.150 | |
| Total gross income | | | 1,500 | | | \$3,225 | \$2.150 | |
| VARIABLE CASH COSTS | | | Description | Labor | Machinery | Materials | Total | Cost/lb |
| Pruning and Brush Mgmt | | | 25.00 hours | \$550.00 | | | \$550.00 | \$0.367 |
| Weed control | | | | | | | 286.00 | 0.191 |
| Hand Weeding | | | 13.00 hours | 286.00 | | | | |
| Disease and Insect Control | | | | | | | 712.27 | 0.475 |
| Air-blast Sprayer | | | 11.00 times | 151.23 | 86.04 | | | |
| Fungicides | | | | | | 300.00 | | |
| Insecticides | | | | | | 175.00 | | |
| Fertilization | | | | | | | 929.61 | 0.620 |
| Fertilizer Spreader | | | 2.00 times | 9.70 | 3.91 | | | |
| Fertigation labor | | | 3.00 hours | 66.00 | | | | |
| Fertilizer | | | | | | 850.00 | | |
| Bird Control | | | | | | | 172.00 | 0.115 |
| Labor | | | 1.00 hours | 22.00 | | | | |
| Equipment | | | | | | 150.00 | | |
| Hand-Harvest | | | | | | | 1,390.00 | 0.927 |
| Contract Hand Harvest | | | 0.85 per pound | 1,275.00 | | | | |
| Load & Haul Berries | | | 0.03 per pound | | | 45.00 | | |
| Berry Commission Fee | | | 0.04 per pound | | | 60.00 | | |
| Tissue Analysis | | | | | | 10.00 | | |
| Irrigation | | | | | | | 350.00 | 0.233 |
| Labor | | | 3.00 hours | 66.00 | | | | |
| Repairs & Maintenance | | | | | 9.00 | | | |
| Water and Power | | | | | | 275.00 | | |
| Trellis | | | | | | | 2,360.00 | 1.573 |
| Installation Labor | | | 30.00 hours | 660.00 | | | | |
| Trellis System | | | | | | 1,700.00 | | |
| Bee Hives | | | 4.00 hives | | | 544.00 | 544.00 | 0.363 |
| IPM Scouting | | | 5.00 hours | 110.00 | | | 110.00 | 0.073 |
| Mower | | | 6.00 times | 58.23 | 26.45 | | 84.68 | 0.056 |
| Portable Toilet | | | | | | 75.00 | 75.00 | 0.050 |
| Pickup | | | | | 53.98 | | 53.98 | 0.036 |
| ATV | | | | | 30.72 | | 30.72 | 0.020 |
| Shop and Machine Shed | | | | | | 13.25 | 13.25 | 0.009 |
| Miscellaneous and Overhead | | | | | | 200.00 | 200.00 | 0.133 |
| Interest: Operating Capital | | | 6 months | | | 123.23 | 123.23 | 0.082 |
| Total variable costs | | | | \$3,254.16 | \$210.10 | \$4,520.48 | \$7,984.74 | \$5.323 |
| FIXED CASH COSTS | | | | | | Unit | Total | Cost/lb |
| Compliance | | | | | | acre | \$3,480.00 | \$2.320 |
| Property Insurance | | | | | | acre | 25.00 | 0.017 |
| Property Taxes | | | | | | acre | 30.00 | 0.020 |
| Total fixed cash costs | | | | | | | \$3,535.00 | \$2.357 |
| FIXED NON-CASH COSTS | | | | | | Unit | Total | Cost/lb |
| Depreciation and Interest | | | | | | | | |
| Machinery and Equipment | | | | | | acre | \$320.01 | \$0.213 |
| Pickup and ATV | | | | | | acre | 72.96 | 0.049 |
| Irrigation and Trellis Systems | | | | | | acre | 286.41 | 0.191 |
| Shop and Machine Shed | | | | | | acre | 24.17 | 0.016 |
| Land Interest Charge | | | | | | acre | 600.00 | 0.400 |
| Interest on Prior Years' Establishment Costs | | | | | | acre | 1,477.96 | 0.985 |
| Total fixed non-cash costs | | | | | | | \$2,781.51 | \$1.854 |
| Total fixed costs | | | | | | | \$6,316.51 | \$4.211 |
| Total of all costs per acre | | | | | | | \$14,301.26 | \$9.534 |
| Net projected returns | | | | | | | -\$11,076.26 | -\$7.384 |

Table 14HH. Year 3, Blueberries, Organic Market, Hand Harvest, \$/acre, economic costs and returns.

| TOTAL GROSS INCOME | | Quantity | Unit | \$/Unit | Total | Price/lb | |
|--|--|----------------|------------|-----------|------------|-------------|----------|
| Blueberries, fresh market | | 3,600 | lbs | \$2.15 | 7,740 | \$2.150 | |
| Total gross income | | 3,600 | | | \$7,740 | \$2.150 | |
| VARIABLE CASH COSTS | | Description | Labor | Machinery | Materials | Total | Cost/lb |
| Pruning and Brush Mgmt | | 40.00 hours | \$880.00 | | | \$880.00 | \$0.244 |
| Weed control | | | | | | 286.00 | 0.079 |
| Hand Weeding | | 13.00 hours | 286.00 | | | | |
| Disease and Insect Control | | | | | | 712.27 | 0.198 |
| Air-blast Sprayer | | 11.00 times | 151.23 | 86.04 | | | |
| Fungicides | | | | | 300.00 | | |
| Insecticides | | | | | 175.00 | | |
| Fertilization | | | | | | 929.61 | 0.258 |
| Fertilizer Spreader | | 2.00 times | 9.70 | 3.91 | | | |
| Fertigation labor | | 3.00 hours | 66.00 | | | | |
| Fertilizer | | | | | 850.00 | | |
| Bird Control | | | | | | 172.00 | 0.048 |
| Labor | | 1.00 hours | 22.00 | | | | |
| Equipment | | | | | 150.00 | | |
| Hand-Harvest | | | | | | 3,322.00 | 0.923 |
| Contract Hand Harvest | | 0.85 per pound | 3,060.00 | | | | |
| Load & Haul Berries | | 0.03 per pound | | | 108.00 | | |
| Berry Commission Fee | | 0.04 per pound | | | 144.00 | | |
| Tissue Analysis | | | | | 10.00 | | |
| Irrigation | | | | | | 350.00 | 0.097 |
| Labor | | 3.00 hours | 66.00 | | | | |
| Repairs & Maintenance | | | | 9.00 | | | |
| Water and Power | | | | | 275.00 | | |
| Trellis | | | | | | 39.00 | 0.011 |
| Labor | | 1.00 hours | 22.00 | | | | |
| Repairs & Maintenance | | | | | 17.00 | | |
| Bee Hives | | 4.00 hives | | | 544.00 | 544.00 | 0.151 |
| IPM Scouting | | 5.00 hours | 110.00 | | | 110.00 | 0.031 |
| Mower | | 6.00 times | 58.23 | 26.45 | | 84.68 | 0.024 |
| Portable Toilet | | | | | 75.00 | 75.00 | 0.021 |
| Pickup | | | | 53.98 | | 53.98 | 0.015 |
| ATV | | | | 30.72 | | 30.72 | 0.009 |
| Shop and Machine Shed | | | | | 13.25 | 13.25 | 0.004 |
| Miscellaneous and Overhead | | | | | 200.00 | 200.00 | 0.056 |
| Interest: Operating Capital | | 6 months | | | 150.33 | 150.33 | 0.042 |
| Total variable costs | | | \$4,445.16 | \$210.10 | \$3,011.58 | \$7,666.84 | \$2.130 |
| FIXED CASH COSTS | | | | | Unit | Total | Cost/lb |
| Compliance | | | | | acre | \$3,480.00 | \$0.967 |
| Property Insurance | | | | | acre | 25.00 | 0.007 |
| Property Taxes | | | | | acre | 30.00 | 0.008 |
| Total fixed cash costs | | | | | | \$3,535.00 | \$0.982 |
| FIXED NON-CASH COSTS | | | | | Unit | Total | Cost/lb |
| Depreciation and Interest | | | | | | | |
| Machinery and Equipment | | | | | acre | \$217.25 | \$0.060 |
| Pickup and ATV | | | | | acre | 72.96 | 0.020 |
| Irrigation and Trellis Systems | | | | | acre | 286.41 | 0.080 |
| Shop and Machine Shed | | | | | acre | 24.17 | 0.007 |
| Land Interest Charge | | | | | acre | 600.00 | 0.167 |
| Interest on Prior Years' Establishment Costs | | | | | acre | 2,142.53 | 0.595 |
| Total fixed non-cash costs | | | | | | \$3,343.32 | \$0.929 |
| Total fixed costs | | | | | | \$6,878.32 | \$1.911 |
| Total of all costs per acre | | | | | | \$14,545.17 | \$4.040 |
| Net projected returns | | | | | | -\$6,805.17 | -\$1.890 |

Table 15HH. Year 4, Blueberries, Organic Market, Hand Harvest, \$/acre, economic costs and returns.

| TOTAL GROSS INCOME | | | | Quantity | Unit | \$/Unit | Total | Price/lb |
|------------------------------------|--|----------------|------------|-----------|-------------|-------------|----------|----------|
| Blueberries, fresh market | | | | 7,200 | lbs | \$2.15 | 15,480 | \$2.150 |
| Total gross income | | | | 7,200 | | | \$15,480 | \$2.150 |
| VARIABLE CASH COSTS | | Description | Labor | Machinery | Materials | Total | Cost/lb | |
| Pruning and Brush Mgmt | | 60.00 hours | \$1,320.00 | | | \$1,320.00 | \$0.183 | |
| Soil sample (every 4th yr) | | | | | 3.50 | 3.50 | 0.000 | |
| Sawdust Application (every 3rd yr) | | | | | | 147.50 | 0.020 | |
| Sawdust | | 11.00 units | | | 85.00 | | | |
| Loader Rental | | | | | 62.50 | | | |
| Weed control | | | | | | 286.00 | 0.040 | |
| Hand Weeding | | 13.00 hours | 286.00 | | | | | |
| Disease and Insect Control | | | | | | 712.27 | 0.099 | |
| Air-blast Sprayer | | 11.00 times | 151.23 | 86.04 | | | | |
| Fungicides | | | | | 300.00 | | | |
| Insecticides | | | | | 175.00 | | | |
| Fertilization | | | | | | 929.61 | 0.129 | |
| Fertilizer Spreader | | 2.00 times | 9.70 | 3.91 | | | | |
| Fertigation labor | | 3.00 hours | 66.00 | | | | | |
| Fertilizer | | | | | 850.00 | | | |
| Bird Control | | | | | | 172.00 | 0.024 | |
| Labor | | 1.00 hours | 22.00 | | | | | |
| Equipment | | | | | 150.00 | | | |
| Hand-Harvest | | | | | | 6,634.00 | 0.921 | |
| Contract Hand Harvest | | 0.85 per pound | 6,120.00 | | | | | |
| Load & Haul Berries | | 0.03 per pound | | | 216.00 | | | |
| Berry Commission Fee | | 0.04 per pound | | | 288.00 | | | |
| Tissue Analysis | | | | | 10.00 | | | |
| Irrigation | | | | | | 350.00 | 0.049 | |
| Labor | | 3.00 hours | 66.00 | | | | | |
| Repairs & Maintenance | | | | 9.00 | | | | |
| Water and Power | | | | | 275.00 | | | |
| Trellis | | | | | | 39.00 | 0.005 | |
| Labor | | 1.00 hours | 22.00 | | | | | |
| Repairs & Maintenance | | | | | 17.00 | | | |
| Bee Hives | | 4.00 hives | | | 544.00 | 544.00 | 0.076 | |
| IPM Scouting | | 5.00 hours | 110.00 | | | 110.00 | 0.015 | |
| Mower | | 6.00 times | 58.23 | 26.45 | | 84.68 | 0.012 | |
| Portable Toilet | | | | | 75.00 | 75.00 | 0.010 | |
| Pickup | | | | 53.98 | | 53.98 | 0.007 | |
| ATV | | | | 30.72 | | 30.72 | 0.004 | |
| Shop and Machine Shed | | | | | 13.25 | 13.25 | 0.002 | |
| Miscellaneous and Overhead | | | | | 200.00 | 200.00 | 0.028 | |
| Interest: Operating Capital | | 6 months | | | 228.39 | 228.39 | 0.032 | |
| Total variable costs | | | \$7,945.16 | \$210.10 | \$3,492.64 | \$11,647.90 | \$1.618 | |
| FIXED CASH COSTS | | | | Unit | Total | Cost/lb | | |
| Compliance | | | | acre | \$3,480.00 | \$0.483 | | |
| Property Insurance | | | | acre | 25.00 | 0.003 | | |
| Property Taxes | | | | acre | 30.00 | 0.004 | | |
| Total fixed cash costs | | | | | \$3,535.00 | \$0.491 | | |
| FIXED NON-CASH COSTS | | | | Unit | Total | Cost/lb | | |
| Depreciation and Interest | | | | | | | | |
| Machinery and Equipment | | | | acre | \$690.81 | \$0.096 | | |
| Pickup and ATV | | | | acre | 72.96 | 0.010 | | |
| Irrigation and Trellis Systems | | | | acre | 286.41 | 0.040 | | |
| Shop and Machine Shed | | | | acre | 24.17 | 0.003 | | |
| Land Interest Charge | | | | acre | 600.00 | 0.083 | | |
| Amortized Establishment Costs | | | | acre | 2,550.84 | 0.354 | | |
| Total fixed non-cash costs | | | | | \$4,225.20 | \$0.587 | | |
| Total fixed costs | | | | | \$7,760.20 | \$1.078 | | |
| Total of all costs per acre | | | | | \$19,408.10 | \$2.696 | | |
| Net projected returns | | | | | -\$3,928.10 | -\$0.546 | | |

Table 16HH. Year 5, Blueberries, Organic Market, Hand Harvest, \$/acre, economic costs and returns.

| Table 10.11: Year 2, Blueberries, Organic Market, Hand Harvest, Grade, Economic Costs and Returns. | | | | | | | |
|--|--|----------------|-------------|-----------|-------------|-------------|---------|
| TOTAL GROSS INCOME | | Quantity | Unit | \$/Unit | Total | Price/lb | |
| Blueberries, fresh market | | 10,800 | lbs | \$2.15 | 23,220 | \$2.150 | |
| Total gross income | | 10,800 | | | \$23,220 | \$2.150 | |
| VARIABLE CASH COSTS | | Description | Labor | Machinery | Materials | Total | Cost/lb |
| Pruning and Brush Mgmt | | 85.00 hours | \$1,870.00 | | | \$1,870.00 | \$0.173 |
| Weed control | | | | | | 286.00 | 0.026 |
| Hand Weeding | | 13.00 hours | 286.00 | | | | |
| Disease and Insect Control | | | | | | 712.27 | 0.066 |
| Air-blast Sprayer | | 11.00 times | 151.23 | 86.04 | | | |
| Fungicides | | | | | 300.00 | | |
| Insecticides | | | | | 175.00 | | |
| Fertilization | | | | | | 929.61 | 0.086 |
| Fertilizer Spreader | | 2.00 times | 9.70 | 3.91 | | | |
| Fertigation labor | | 3.00 hours | 66.00 | | | | |
| Fertilizer | | | | | 850.00 | | |
| Bird Control | | | | | | 172.00 | 0.016 |
| Labor | | 1.00 hours | 22.00 | | | | |
| Equipment | | | | | 150.00 | | |
| Hand-Harvest | | | | | | 9,946.00 | 0.921 |
| Contract Hand Harvest | | 0.85 per pound | 9,180.00 | | | | |
| Load & Haul Berries | | 0.03 per pound | | | 324.00 | | |
| Berry Commission Fee | | 0.04 per pound | | | 432.00 | | |
| Tissue Analysis | | | | | 10.00 | | |
| Irrigation | | | | | | 350.00 | 0.032 |
| Labor | | 3.00 hours | 66.00 | | | | |
| Repairs & Maintenance | | | | 9.00 | | | |
| Water and Power | | | | | 275.00 | | |
| Trellis | | | | | | 39.00 | 0.004 |
| Labor | | 1.00 hours | 22.00 | | | | |
| Repairs & Maintenance | | | | | 17.00 | | |
| Bee Hives | | 4.00 hives | | | 544.00 | 544.00 | 0.050 |
| IPM Scouting | | 5.00 hours | 110.00 | | | 110.00 | 0.010 |
| Mower | | 6.00 times | 58.23 | 26.45 | | 84.68 | 0.008 |
| Portable Toilet | | | | | 75.00 | 75.00 | 0.007 |
| Pickup | | | | 53.98 | | 53.98 | 0.005 |
| ATV | | | | 30.72 | | 30.72 | 0.003 |
| Shop and Machine Shed | | | | | 13.25 | 13.25 | 0.001 |
| Miscellaneous and Overhead | | | | | 200.00 | 200.00 | 0.019 |
| Interest: Operating Capital | | 6 months | | | 302.61 | 302.61 | 0.028 |
| Total variable costs | | | \$11,555.16 | \$210.10 | \$3,667.86 | \$15,433.12 | \$1.429 |
| FIXED CASH COSTS | | | | Unit | Total | Cost/lb | |
| Compliance | | | | acre | \$3,480.00 | \$0.322 | |
| Property Insurance | | | | acre | 25.00 | 0.002 | |
| Property Taxes | | | | acre | 30.00 | 0.003 | |
| Total fixed cash costs | | | | | \$3,535.00 | \$0.327 | |
| FIXED NON-CASH COSTS | | | | Unit | Total | Cost/lb | |
| Depreciation and Interest | | | | | | | |
| Machinery and Equipment | | | | acre | \$690.81 | \$0.064 | |
| Pickup and ATV | | | | acre | 72.96 | 0.007 | |
| Irrigation and Trellis Systems | | | | acre | 286.41 | 0.027 | |
| Shop and Machine Shed | | | | acre | 24.17 | 0.002 | |
| Land Interest Charge | | | | acre | 600.00 | 0.056 | |
| Interest on Prior Years' Establishment Costs | | | | acre | 2,786.53 | 0.258 | |
| Total fixed non-cash costs | | | | | \$4,460.88 | \$0.413 | |
| Total fixed costs | | | | | \$7,995.88 | \$0.740 | |
| Total of all costs per acre | | | | | \$23,429.01 | \$2.169 | |
| Net projected returns | | | | | -\$209.01 | -\$0.019 | |

Table 17HH. Year 6, Blueberries, Organic Market, Hand Harvest, \$/acre, economic costs and returns.

| TOTAL GROSS INCOME | | | Quantity | Unit | \$/Unit | Total | Price/lb | |
|--|--|--|----------------|-------------|-----------|-------------|-------------|---------|
| Blueberries, fresh market | | | 14,400 | lbs | \$2.15 | 30,960 | \$2.150 | |
| Total gross income | | | 14,400 | | | \$30,960 | \$2.150 | |
| VARIABLE CASH COSTS | | | Description | Labor | Machinery | Materials | Total | Cost/lb |
| Pruning and Brush Mgmt | | | 100.00 hours | \$2,200.00 | | | \$2,200.00 | \$0.153 |
| Weed control | | | | | | | 286.00 | 0.020 |
| Hand Weeding | | | 13.00 hours | 286.00 | | | | |
| Disease and Insect Control | | | | | | | 1,073.84 | 0.075 |
| Air-blast Sprayer | | | 12.00 times | 164.98 | 93.86 | | | |
| Fungicides | | | | | | 450.00 | | |
| Insecticides | | | | | | 365.00 | | |
| Fertilization | | | | | | | 1,129.61 | 0.078 |
| Fertilizer Spreader | | | 2.00 times | 9.70 | 3.91 | | | |
| Fertigation labor | | | 3.00 hours | 66.00 | | | | |
| Fertilizer | | | | | | 1,050.00 | | |
| Bird Control | | | | | | | 172.00 | 0.012 |
| Labor | | | 1.00 hours | 22.00 | | | | |
| Equipment | | | | | | 150.00 | | |
| Hand-Harvest | | | | | | | 13,258.00 | 0.921 |
| Contract Hand Harvest | | | 0.85 per pound | 12,240.00 | | | | |
| Load & Haul Berries | | | 0.03 per pound | | | 432.00 | | |
| Berry Commission Fee | | | 0.04 per pound | | | 576.00 | | |
| Tissue Analysis | | | | | | 10.00 | | |
| Irrigation | | | | | | | 350.00 | 0.024 |
| Labor | | | 3.00 hours | 66.00 | | | | |
| Repairs & Maintenance | | | | | 9.00 | | | |
| Water and Power | | | | | | 275.00 | | |
| Trellis | | | | | | | 39.00 | 0.003 |
| Labor | | | 1.00 hours | 22.00 | | | | |
| Repairs & Maintenance | | | | | | 17.00 | | |
| Bee Hives | | | 4.00 hives | | | 544.00 | 544.00 | 0.038 |
| IPM Scouting | | | 5.00 hours | 110.00 | | | 110.00 | 0.008 |
| Mower | | | 6.00 times | 58.23 | 26.45 | | 84.68 | 0.006 |
| Portable Toilet | | | | | | 75.00 | 75.00 | 0.005 |
| Pickup | | | | | 53.98 | | 53.98 | 0.004 |
| ATV | | | | | 30.72 | | 30.72 | 0.002 |
| Shop and Machine Shed | | | | | | 13.25 | 13.25 | 0.001 |
| Miscellaneous and Overhead | | | | | | 200.00 | 200.00 | 0.014 |
| Interest: Operating Capital | | | 6 months | | | 386.68 | 386.68 | 0.027 |
| Total variable costs | | | | \$14,958.91 | \$217.92 | \$4,543.93 | \$19,720.77 | \$1.369 |
| FIXED CASH COSTS | | | | | Unit | Total | Cost/lb | |
| Compliance | | | | | acre | \$3,480.00 | \$0.242 | |
| Property Insurance | | | | | acre | 25.00 | 0.002 | |
| Property Taxes | | | | | acre | 30.00 | 0.002 | |
| Total fixed cash costs | | | | | | \$3,535.00 | \$0.245 | |
| FIXED NON-CASH COSTS | | | | | Unit | Total | Cost/lb | |
| Depreciation and Interest | | | | | | | | |
| Machinery and Equipment | | | | | acre | \$735.12 | \$0.051 | |
| Pickup and ATV | | | | | acre | 72.96 | 0.005 | |
| Irrigation and Trellis Systems | | | | | acre | 286.41 | 0.020 | |
| Shop and Machine Shed | | | | | acre | 24.17 | 0.002 | |
| Land Interest Charge | | | | | acre | 600.00 | 0.042 | |
| Interest on Prior Years' Establishment Costs | | | | | acre | 2,799.07 | 0.194 | |
| Total fixed non-cash costs | | | | | | \$4,517.73 | \$0.314 | |
| Total fixed costs | | | | | | \$8,052.73 | \$0.559 | |
| Total of all costs per acre | | | | | | \$27,773.49 | \$1.929 | |
| Net projected returns | | | | | | \$3,186.51 | \$0.222 | |

Table 18HH. Full production, Blueberries, Organic Market, Hand Harvest, \$/acre, economic costs and returns.

| TOTAL GROSS INCOME | | | Quantity | Unit | \$/Unit | Total | Price/lb | |
|------------------------------------|--|--|----------------|-------------|-----------|------------|-------------|---------|
| Blueberries, fresh market | | | 16,200 | lbs | \$2.15 | 34,830 | \$2.150 | |
| Blueberries, processed market | | | 1,800 | lbs | 1.20 | 2,160 | 1.200 | |
| Total gross income | | | 18,000 | | | \$36,990 | \$2.055 | |
| VARIABLE CASH COSTS | | | Description | Labor | Machinery | Materials | Total | Cost/lb |
| Pruning and Brush Mgmt | | | 100.00 hours | \$2,200.00 | | | \$2,200.00 | \$0.122 |
| Soil sample (every 4th yr) | | | | | | 3.50 | 3.50 | 0.000 |
| Sawdust Application (every 3rd yr) | | | | | | | 49.17 | 0.003 |
| Sawdust | | | 3.67 units | | | 28.33 | | |
| Loader Rental | | | | | | 20.83 | | |
| Weed control | | | | | | | 286.00 | 0.016 |
| Hand Weeding | | | 13.00 hours | 286.00 | | | | |
| Disease and Insect Control | | | | | | | 1,073.84 | 0.060 |
| Air-blast Sprayer | | | 12.00 times | 164.98 | 93.86 | | | |
| Fungicides | | | | | | 450.00 | | |
| Insecticides | | | | | | 365.00 | | |
| Fertilization | | | | | | | 1,129.61 | 0.063 |
| Fertilizer Spreader | | | 2.00 times | 9.70 | 3.91 | | | |
| Fertigation labor | | | 3.00 hours | 66.00 | | | | |
| Fertilizer | | | | | | 1,050.00 | | |
| Bird Control | | | | | | | 172.00 | 0.010 |
| Labor | | | 1.00 hours | 22.00 | | | | |
| Equipment | | | | | | 150.00 | | |
| Hand-Harvest | | | | | | | 15,328.00 | 0.852 |
| Contract Hand Harvest | | | 0.85 per pound | 13,770.00 | | | | |
| Contract Machine Harvest | | | 0.16 per pound | | | 288.00 | | |
| Load & Haul Berries | | | 0.03 per pound | | | 540.00 | | |
| Berry Commission Fee | | | 0.04 per pound | | | 720.00 | | |
| Tissue Analysis | | | | | | 10.00 | | |
| Irrigation | | | | | | | 350.00 | 0.019 |
| Labor | | | 3.00 hours | 66.00 | | | | |
| Repairs & Maintenance | | | | | 9.00 | | | |
| Water and Power | | | | | | 275.00 | | |
| Trellis | | | | | | | 39.00 | 0.002 |
| Labor | | | 1.00 hours | 22.00 | | | | |
| Repairs & Maintenance | | | | | | 17.00 | | |
| Bee Hives | | | 4.00 hives | | | 544.00 | 544.00 | 0.030 |
| IPM Scouting | | | 5.00 hours | 110.00 | | | 110.00 | 0.006 |
| Mower | | | 6.00 times | 58.23 | 26.45 | | 84.68 | 0.005 |
| Portable Toilet | | | | | | 75.00 | 75.00 | 0.004 |
| Pickup | | | | | 53.98 | | 53.98 | 0.003 |
| ATV | | | | | 30.72 | | 30.72 | 0.002 |
| Shop and Machine Shed | | | | | | 13.25 | 13.25 | 0.001 |
| Miscellaneous and Overhead | | | | | | 200.00 | 200.00 | 0.011 |
| Interest: Operating Capital | | | 6 months | | | 429.14 | 429.14 | 0.024 |
| Total variable costs | | | | \$16,488.91 | \$217.92 | \$5,179.05 | \$21,885.89 | \$1.216 |
| FIXED CASH COSTS | | | | | | Unit | Total | Cost/lb |
| Compliance | | | | | | acre | \$3,480.00 | \$0.193 |
| Property Insurance | | | | | | acre | 25.00 | 0.001 |
| Property Taxes | | | | | | acre | 30.00 | 0.002 |
| Total fixed cash costs | | | | | | | \$3,535.00 | \$0.196 |
| FIXED NON-CASH COSTS | | | | | | Unit | Total | Cost/lb |
| Depreciation and Interest | | | | | | | | |
| Machinery and Equipment | | | | | | acre | \$735.12 | \$0.041 |
| Pickup and ATV | | | | | | acre | 72.96 | 0.004 |
| Irrigation and Trellis Systems | | | | | | acre | 286.41 | 0.016 |
| Shop and Machine Shed | | | | | | acre | 24.17 | 0.001 |
| Land Interest Charge | | | | | | acre | 600.00 | 0.033 |
| Amortized Establishment Costs | | | | | | acre | 4,308.54 | 0.239 |
| Total fixed non-cash costs | | | | | | | \$6,027.20 | \$0.335 |
| Total fixed costs | | | | | | | \$9,562.20 | \$0.531 |
| Total of all costs per acre | | | | | | | \$31,448.08 | \$1.747 |
| Net projected returns | | | | | | | \$5,541.92 | \$0.308 |

APPENDIX B

Enterprise Budgets: Organic Market, Machine-Harvested Blueberries in the Willamette Valley, Oregon

| Table 13MH. Year 0, Blueberries, Organic Market, Machine Harvest, \$/acre, economic costs and returns. | | | | | |
|--|--------------|-------------------|----------------|--------------------|--------------------|
| VARIABLE CASH COSTS | Description | Labor | Machinery | Materials | Total |
| Soil sample (every 4th yr) | | | | \$8.00 | \$8.00 |
| Land Preparation, Custom Operations | | | | | 50.00 |
| Rip, Plow, Drag, and Roll | 2.00 times | | | 50.00 | |
| Sawdust Application (every 3rd yr) | | | | | 1,677.50 |
| Sawdust | 19.00 units | | | 1,615.00 | |
| Loader Rental | | | | 62.50 | |
| Fertilization | | | | | 856.81 |
| Fertilizer Spreader | 1.00 times | 4.85 | 1.96 | | |
| Fertilizer | | | | 850.00 | |
| Incorporate Fertilizer | | | | | 15.00 |
| Rototiller, Rental | | | | 15.00 | |
| Pre-plant | | | | | 544.00 |
| Mark Field | 2.00 hours | \$44.00 | | | |
| Shape Beds, Custom | | | | 500.00 | |
| Planting Bushes | | | | | 8,723.00 |
| Labor | 50.00 hours | 1,100.00 | | | |
| Blueberry Bushes | 1,452 plants | | | 7,623.00 | |
| Post-plant | | | | | 55.00 |
| Drag Field | | 12.00 | 8.00 | | |
| Seed Cover Crop | | | | 35.00 | |
| Irrigation | | | | | 989.00 |
| Labor | 32.00 hours | 704.00 | | | |
| Handline Rental | | | | 10.00 | |
| Water and Power | | | | 275.00 | |
| Pickup | | | 53.98 | | 53.98 |
| ATV | | | 30.72 | | 30.72 |
| Shop and Machine Shed | | | | 13.25 | 13.25 |
| Miscellaneous and Overhead | | | | 200.00 | 200.00 |
| Interest: Operating Capital | 6 months | | | 264.33 | 264.33 |
| Total variable costs | | \$1,864.85 | \$94.66 | \$11,521.08 | \$13,480.58 |
| FIXED CASH COSTS | | | | Unit | Total |
| Compliance | | | | acre | \$1,990.00 |
| Property Insurance | | | | acre | 25.00 |
| Property Taxes | | | | acre | 30.00 |
| Total fixed cash costs | | | | | \$2,045.00 |
| FIXED NON-CASH COSTS | | | | Unit | Total |
| Depreciation and Interest | | | | | |
| Machinery and Equipment | | | | acre | \$28.44 |
| Pickup and ATV | | | | acre | 72.96 |
| Shop and Machine Shed | | | | acre | 24.17 |
| Land Interest Charge | | | | acre | 600.00 |
| Total fixed non-cash costs | | | | | \$725.57 |
| Total fixed costs | | | | | \$2,770.57 |
| Total of all costs per acre | | | | | \$16,251.15 |

Table 14MH. Year 1, Blueberries, Organic Market, Machine Harvest, \$/acre, economic costs and returns.

| VARIABLE CASH COSTS | Description | Labor | Machinery | Materials | Total |
|------------------------------------|-------------|-----------------|-----------------|-------------------|-------------------|
| Weed control | | | | | 396.00 |
| Hand Weeding | 18.00 hours | 396.00 | | | |
| Sawdust Application (every 3rd yr) | | | | | 147.50 |
| Sawdust | 11.00 units | | | 85.00 | |
| Loader Rental | | | | 62.50 | |
| Fertilization | | | | | 922.81 |
| Fertilizer Spreader | 1.00 times | 4.85 | 1.96 | | |
| Fertigation labor | 3.00 hours | 66.00 | | | |
| Fertilizer | | | | 850.00 | |
| Irrigation | | | | | 350.00 |
| Labor | 3.00 hours | 66.00 | | | |
| Repairs & Maintenance | | | 9.00 | | |
| Water and Power | | | | 275.00 | |
| Irrigation System | | | | 2,500.00 | |
| Planting Bushes | | | | | 293.75 |
| Labor | 5.00 hours | 110.00 | | | |
| Blueberry Bushes | 35 plants | | | 183.75 | |
| Mower | 3.00 times | 29.11 | 13.23 | | 42.34 |
| Portable Toilet | | | | 75.00 | 75.00 |
| Pickup | | | 53.98 | | 53.98 |
| ATV | | | 30.72 | | 30.72 |
| Shop and Machine Shed | | | | 13.25 | 13.25 |
| Miscellaneous and Overhead | | | | 200.00 | 200.00 |
| Interest: Operating Capital | 6 months | | | 50.51 | 50.51 |
| Total variable costs | | \$671.97 | \$108.88 | \$4,295.01 | \$5,075.85 |
| FIXED CASH COSTS | | | | Unit | Total |
| Compliance | | | | acre | \$2,090.00 |
| Property Insurance | | | | acre | 25.00 |
| Property Taxes | | | | acre | 30.00 |
| Total fixed cash costs | | | | | \$2,145.00 |
| FIXED NON-CASH COSTS | | | | Unit | Total |
| Depreciation and Interest | | | | | |
| Machinery and Equipment | | | | acre | \$302.40 |
| Pickup and ATV | | | | acre | 72.96 |
| Irrigation System | | | | acre | 187.00 |
| Shop and Machine Shed | | | | acre | 24.17 |
| Land Interest Charge | | | | acre | 600.00 |
| Amortized Establishment Costs | | | | acre | 975.07 |
| Total fixed non-cash costs | | | | | \$2,161.60 |
| Total fixed costs | | | | | \$4,306.60 |
| Total of all costs per acre | | | | | \$9,382.46 |

Table 15MH. Year 2, Blueberries, Organic Market, Machine Harvest, \$/acre, economic costs and returns.

| Table 13-11: Pear 2, Blueberries, Organic Market, Machine Harvest, Share, Economic Costs and Returns. | | | | | | | |
|---|--|----------------|------------|-----------|--------------|------------|---------|
| TOTAL GROSS INCOME | | Quantity | Unit | \$/Unit | Total | Price/lb | |
| Blueberries, fresh market | | 1,500 | lbs | \$2.15 | 3,225 | \$2.150 | |
| Total gross income | | 1,500 | | | \$3,225 | \$2.150 | |
| VARIABLE CASH COSTS | | Description | Labor | Machinery | Materials | Total | Cost/lb |
| Pruning and Brush Mgmt | | 25.00 hours | \$550.00 | | | \$550.00 | \$0.367 |
| Weed control | | | | | | 286.00 | 0.191 |
| Hand Weeding | | 13.00 hours | 286.00 | | | | |
| Disease and Insect Control | | | | | | 712.27 | 0.475 |
| Air-blast Sprayer | | 11.00 times | 151.23 | 86.04 | | | |
| Fungicides | | | | | 300.00 | | |
| Insecticides | | | | | 175.00 | | |
| Fertilization | | | | | | 929.61 | 0.620 |
| Fertilizer Spreader | | 2.00 times | 9.70 | 3.91 | | | |
| Fertigation labor | | 3.00 hours | 66.00 | | | | |
| Fertilizer | | | | | 850.00 | | |
| Bird Control | | | | | | 172.00 | 0.115 |
| Labor | | 1.00 hours | 22.00 | | | | |
| Equipment | | | | | 150.00 | | |
| Machine-Harvest | | | | | | 1,390.00 | 0.927 |
| Contract Hand Harvest | | 0.85 per pound | 1,275.00 | | | | |
| Load & Haul Berries | | 0.03 per pound | | | 45.00 | | |
| Berry Commission Fee | | 0.04 per pound | | | 60.00 | | |
| Tissue Analysis | | | | | 10.00 | | |
| Irrigation | | | | | | 350.00 | 0.233 |
| Labor | | 3.00 hours | 66.00 | | | | |
| Repairs & Maintenance | | | | 9.00 | | | |
| Water and Power | | | | | 275.00 | | |
| Trellis | | | | | | 2,360.00 | 1.573 |
| Installation Labor | | 30.00 hours | 660.00 | | | | |
| Trellis System | | | | | 1,700.00 | | |
| Bee Hives | | 4.00 hives | | | 544.00 | 544.00 | 0.363 |
| IPM Scouting | | 5.00 hours | 110.00 | | | 110.00 | 0.073 |
| Mower | | 6.00 times | 58.23 | 26.45 | | 84.68 | 0.056 |
| Portable Toilet | | | | | 75.00 | 75.00 | 0.050 |
| Pickup | | | | 53.98 | | 53.98 | 0.036 |
| ATV | | | | 30.72 | | 30.72 | 0.020 |
| Shop and Machine Shed | | | | | 13.25 | 13.25 | 0.009 |
| Miscellaneous and Overhead | | | | | 200.00 | 200.00 | 0.133 |
| Interest: Operating Capital | | 6 months | | | 123.23 | 123.23 | 0.082 |
| Total variable costs | | | \$3,254.16 | \$210.10 | \$4,520.48 | \$7,984.74 | \$5.323 |
| FIXED CASH COSTS | | | | Unit | Total | Cost/lb | |
| Compliance | | | | acre | \$3,480.00 | \$2.320 | |
| Property Insurance | | | | acre | 25.00 | 0.017 | |
| Property Taxes | | | | acre | 30.00 | 0.020 | |
| Total fixed cash costs | | | | | \$3,535.00 | \$2.357 | |
| FIXED NON-CASH COSTS | | | | Unit | Total | Cost/lb | |
| Depreciation and Interest | | | | | | | |
| Machinery and Equipment | | | | acre | \$320.01 | \$0.213 | |
| Pickup and ATV | | | | acre | 72.96 | 0.049 | |
| Irrigation and Trellis Systems | | | | acre | 286.41 | 0.191 | |
| Shop and Machine Shed | | | | acre | 24.17 | 0.016 | |
| Land Interest Charge | | | | acre | 600.00 | 0.400 | |
| Interest on Prior Years' Establishment Costs | | | | acre | 1,538.02 | 1.025 | |
| Total fixed non-cash costs | | | | | \$2,841.57 | \$1.894 | |
| Total fixed costs | | | | | \$6,376.57 | \$4.251 | |
| Total of all costs per acre | | | | | \$14,361.32 | \$9.574 | |
| Net projected returns | | | | | -\$11,136.32 | -\$7.424 | |

Table 16MH. Year 3, Blueberries, Organic Market, Machine Harvest, \$/acre, economic costs and returns.

| Table 10.11. Part 2. Blueberries, Organic Market, Machine Harvest, 3-acre, Economic Costs and Returns. | | | | | | | |
|--|--|----------------|------------|-----------|-------------|------------|---------|
| TOTAL GROSS INCOME | | Quantity | Unit | \$/Unit | Total | Price/lb | |
| Blueberries, fresh market | | 3,600 | lbs | \$2.15 | \$7,740 | \$2.150 | |
| Total gross income | | 3,600 | | | \$7,740 | \$2.150 | |
| VARIABLE CASH COSTS | | Description | Labor | Machinery | Materials | Total | Cost/lb |
| Pruning and Brush Mgmt | | 40.00 hours | \$880.00 | | | \$880.00 | \$0.244 |
| Weed control | | | | | | 286.00 | 0.079 |
| Hand Weeding | | 13.00 hours | 286.00 | | | | |
| Disease and Insect Control | | | | | | 712.27 | 0.198 |
| Air-blast Sprayer | | 11.00 times | 151.23 | 86.04 | | | |
| Fungicides | | | | | 300.00 | | |
| Insecticides | | | | | 175.00 | | |
| Fertilization | | | | | | 929.61 | 0.258 |
| Fertilizer Spreader | | 2.00 times | 9.70 | 3.91 | | | |
| Fertigation labor | | 3.00 hours | 66.00 | | | | |
| Fertilizer | | | | | 850.00 | | |
| Bird Control | | | | | | 172.00 | 0.048 |
| Labor | | 1.00 hours | 22.00 | | | | |
| Equipment | | | | | 150.00 | | |
| Machine-Harvest | | | | | | 3,322.00 | 0.923 |
| Contract Hand Harvest | | 0.85 per pound | 3,060.00 | | | | |
| Load & Haul Berries | | 0.03 per pound | | | 108.00 | | |
| Berry Commission Fee | | 0.04 per pound | | | 144.00 | | |
| Tissue Analysis | | | | | 10.00 | | |
| Irrigation | | | | | | 350.00 | 0.097 |
| Labor | | 3.00 hours | 66.00 | | | | |
| Repairs & Maintenance | | | | 9.00 | | | |
| Water and Power | | | | | 275.00 | | |
| Trellis | | | | | | 39.00 | 0.011 |
| Labor | | 1.00 hours | 22.00 | | | | |
| Repairs & Maintenance | | | | | 17.00 | | |
| Bee Hives | | 4.00 hives | | | 544.00 | 544.00 | 0.151 |
| IPM Scouting | | 5.00 hours | 110.00 | | | 110.00 | 0.031 |
| Mower | | 6.00 times | 58.23 | 26.45 | | 84.68 | 0.024 |
| Portable Toilet | | | | | 75.00 | 75.00 | 0.021 |
| Pickup | | | | 53.98 | | 53.98 | 0.015 |
| ATV | | | | 30.72 | | 30.72 | 0.009 |
| Shop and Machine Shed | | | | | 13.25 | 13.25 | 0.004 |
| Miscellaneous and Overhead | | | | | 200.00 | 200.00 | 0.056 |
| Interest: Operating Capital | | 6 months | | | 150.33 | 150.33 | 0.042 |
| Total variable costs | | | \$4,445.16 | \$210.10 | \$3,011.58 | \$7,666.84 | \$2.130 |
| FIXED CASH COSTS | | | | Unit | Total | Cost/lb | |
| Compliance | | | | acre | \$3,480.00 | \$0.967 | |
| Property Insurance | | | | acre | 25.00 | 0.007 | |
| Property Taxes | | | | acre | 30.00 | 0.008 | |
| Total fixed cash costs | | | | | \$3,535.00 | \$0.982 | |
| FIXED NON-CASH COSTS | | | | Unit | Total | Cost/lb | |
| Depreciation and Interest | | | | | | | |
| Machinery and Equipment | | | | acre | \$217.25 | \$0.060 | |
| Pickup and ATV | | | | acre | 72.96 | 0.020 | |
| Irrigation and Trellis Systems | | | | acre | 137.50 | 0.038 | |
| Shop and Machine Shed | | | | acre | 24.17 | 0.007 | |
| Land Interest Charge | | | | acre | 600.00 | 0.167 | |
| Interest on Prior Years' Establishment Costs | | | | acre | 2,206.20 | 0.613 | |
| Total fixed non-cash costs | | | | | \$3,258.07 | \$0.905 | |
| Total fixed costs | | | | | \$6,793.07 | \$1.887 | |
| Total of all costs per acre | | | | | \$14,459.92 | \$4.017 | |
| Net projected returns | | | | | -\$6,719.92 | -\$1.867 | |

Table 17/MH. Year 4, Blueberries, Organic Market, Machine Harvest, \$/acre, economic costs and returns.

| TOTAL GROSS INCOME | | | | | | |
|------------------------------------|----------------|------------|-----------|------------|-------------|----------|
| | | Quantity | Unit | \$/Unit | Total | Price/lb |
| Blueberries, fresh market | | 3,600 | lbs | \$2.15 | \$7,740 | \$2.150 |
| Blueberries, processed market | | 3,600 | lbs | 1.20 | 4,320 | 1.200 |
| Total gross income | | 7,200 | | | \$12,060 | \$1.675 |
| VARIABLE CASH COSTS | | | | | | |
| | Description | Labor | Machinery | Materials | Total | Cost/lb |
| Pruning and Brush Mgmt | 60.00 hours | \$1,320.00 | | | \$1,320.00 | \$0.183 |
| Soil sample (every 4th yr) | | | | 3.50 | 3.50 | 0.000 |
| Sawdust Application (every 3rd yr) | | | | | 147.50 | 0.020 |
| Sawdust | 11.00 units | | | 85.00 | | |
| Loader Rental | | | | 62.50 | | |
| Weed control | | | | | 286.00 | 0.040 |
| Hand Weeding | 13.00 hours | 286.00 | | | | |
| Disease and Insect Control | | | | | 712.27 | 0.099 |
| Air-blast Sprayer | 11.00 times | 151.23 | 86.04 | | | |
| Fungicides | | | | 300.00 | | |
| Insecticides | | | | 175.00 | | |
| Fertilization | | | | | 929.61 | 0.129 |
| Fertilizer Spreader | 2.00 times | 9.70 | 3.91 | | | |
| Fertigation labor | 3.00 hours | 66.00 | | | | |
| Fertilizer | | | | 850.00 | | |
| Bird Control | | | | | 172.00 | 0.024 |
| Labor | 1.00 hours | 22.00 | | | | |
| Equipment | | | | 150.00 | | |
| Machine-Harvest | | | | | 1,594.00 | 0.221 |
| Contract Machine Harvest | 0.15 per pound | | | 1,080.00 | | |
| Load & Haul Berries | 0.03 per pound | | | 216.00 | | |
| Berry Commission Fee | 0.04 per pound | | | 288.00 | | |
| Tissue Analysis | | | | 10.00 | | |
| Irrigation | | | | | 350.00 | 0.049 |
| Labor | 3.00 hours | 66.00 | | | | |
| Repairs & Maintenance | | | 9.00 | | | |
| Water and Power | | | | 275.00 | | |
| Trellis | | | | | 39.00 | 0.005 |
| Labor | 1.00 hours | 22.00 | | | | |
| Repairs & Maintenance | | | | 17.00 | | |
| Bee Hives | 4.00 hives | | | 544.00 | 544.00 | 0.076 |
| IPM Scouting | 5.00 hours | 110.00 | | | 110.00 | 0.015 |
| Mower | 6.00 times | 58.23 | 26.45 | | 84.68 | 0.012 |
| Portable Toilet | | | | 75.00 | 75.00 | 0.010 |
| Pickup | | | 53.98 | | 53.98 | 0.007 |
| ATV | | | 30.72 | | 30.72 | 0.004 |
| Shop and Machine Shed | | | | 13.25 | 13.25 | 0.002 |
| Miscellaneous and Overhead | | | | 200.00 | 200.00 | 0.028 |
| Interest: Operating Capital | 6 months | | | 127.59 | 127.59 | 0.018 |
| Total variable costs | | \$1,825.16 | \$210.10 | \$4,471.84 | \$6,507.10 | \$0.904 |
| FIXED CASH COSTS | | | | Unit | Total | Cost/lb |
| Compliance | | | | acre | \$3,480.00 | \$0.483 |
| Property Insurance | | | | acre | 25.00 | 0.003 |
| Property Taxes | | | | acre | 30.00 | 0.004 |
| Total fixed cash costs | | | | | \$3,535.00 | \$0.491 |
| FIXED NON-CASH COSTS | | | | Unit | Total | Cost/lb |
| Depreciation and Interest | | | | | | |
| Machinery and Equipment | | | | acre | \$690.81 | \$0.096 |
| Pickup and ATV | | | | acre | 72.96 | 0.010 |
| Irrigation and Trellis Systems | | | | acre | 286.41 | 0.040 |
| Shop and Machine Shed | | | | acre | 24.17 | 0.003 |
| Land Interest Charge | | | | acre | 600.00 | 0.083 |
| Amortized Establishment Costs | | | | acre | 2,609.39 | 0.362 |
| Total fixed non-cash costs | | | | | \$4,283.74 | \$0.595 |
| Total fixed costs | | | | | \$7,818.74 | \$1.086 |
| Total of all costs per acre | | | | | \$14,325.85 | \$1.990 |
| Net projected returns | | | | | -\$2,265.85 | -\$0.315 |

Table 18MH. Year 5, Blueberries, Organic Market, Machine Harvest, \$/acre, economic costs and returns.

| TOTAL GROSS INCOME | | | | | | |
|--|----------------|------------|-----------|------------|-------------|----------|
| | | Quantity | Unit | \$/Unit | Total | Price/lb |
| Blueberries, fresh market | | 5,300 | lbs | \$2.15 | \$11,395 | \$2.150 |
| Blueberries, processed market | | 5,300 | lbs | 1.20 | 6,360 | 1.200 |
| Total gross income | | 10,600 | | | \$17,755 | \$1.675 |
| VARIABLE CASH COSTS | | | | | | |
| | Description | Labor | Machinery | Materials | Total | Cost/lb |
| Pruning and Brush Mgmt | 85.00 hours | \$1,870.00 | | | \$1,870.00 | \$0.176 |
| Weed control | | | | | 286.00 | 0.027 |
| Hand Weeding | 13.00 hours | 286.00 | | | | |
| Disease and Insect Control | | | | | 712.27 | 0.067 |
| Air-blast Sprayer | 11.00 times | 151.23 | 86.04 | | | |
| Fungicides | | | | 300.00 | | |
| Insecticides | | | | 175.00 | | |
| Fertilization | | | | | 929.61 | 0.088 |
| Fertilizer Spreader | 2.00 times | 9.70 | 3.91 | | | |
| Fertigation labor | 3.00 hours | 66.00 | | | | |
| Fertilizer | | | | 850.00 | | |
| Bird Control | | | | | 172.00 | 0.016 |
| Labor | 1.00 hours | 22.00 | | | | |
| Equipment | | | | 150.00 | | |
| Machine-Harvest | | | | | 2,342.00 | 0.221 |
| Contract Machine Harvest | 0.15 per pound | | | 1,590.00 | | |
| Load & Haul Berries | 0.03 per pound | | | 318.00 | | |
| Berry Commission Fee | 0.04 per pound | | | 424.00 | | |
| Tissue Analysis | | | | 10.00 | | |
| Irrigation | | | | | 350.00 | 0.033 |
| Labor | 3.00 hours | 66.00 | | | | |
| Repairs & Maintenance | | | 9.00 | | | |
| Water and Power | | | | 275.00 | | |
| Trellis | | | | | 39.00 | 0.004 |
| Labor | 1.00 hours | 22.00 | | | | |
| Repairs & Maintenance | | | | 17.00 | | |
| Bee Hives | 4.00 hives | | | 544.00 | 544.00 | 0.051 |
| IPM Scouting | 5.00 hours | 110.00 | | | 110.00 | 0.010 |
| Mower | 6.00 times | 58.23 | 26.45 | | 84.68 | 0.008 |
| Portable Toilet | | | | 75.00 | 75.00 | 0.007 |
| Pickup | | | 53.98 | | 53.98 | 0.005 |
| ATV | | | 30.72 | | 30.72 | 0.003 |
| Shop and Machine Shed | | | | 13.25 | 13.25 | 0.001 |
| Miscellaneous and Overhead | | | | 200.00 | 200.00 | 0.019 |
| Interest: Operating Capital | 6 months | | | 150.53 | 150.53 | 0.014 |
| Total variable costs | | \$2,375.16 | \$210.10 | \$5,091.78 | \$7,677.04 | \$0.724 |
| FIXED CASH COSTS | | | | Unit | Total | Cost/lb |
| Compliance | | | | acre | \$3,480.00 | \$0.328 |
| Property Insurance | | | | acre | 25.00 | 0.002 |
| Property Taxes | | | | acre | 30.00 | 0.003 |
| Total fixed cash costs | | | | | \$3,535.00 | \$0.333 |
| FIXED NON-CASH COSTS | | | | Unit | Total | Cost/lb |
| Depreciation and Interest | | | | | | |
| Machinery and Equipment | | | | acre | \$690.81 | \$0.065 |
| Pickup and ATV | | | | acre | 72.96 | 0.007 |
| Irrigation and Trellis Systems | | | | acre | 286.41 | 0.027 |
| Shop and Machine Shed | | | | acre | 24.17 | 0.002 |
| Land Interest Charge | | | | acre | 600.00 | 0.057 |
| Interest on Prior Years' Establishment Costs | | | | acre | 2,745.34 | 0.259 |
| Total fixed non-cash costs | | | | | \$4,419.70 | \$0.417 |
| Total fixed costs | | | | | \$7,954.70 | \$0.750 |
| Total of all costs per acre | | | | | \$15,631.74 | \$1.475 |
| Net projected returns | | | | | \$2,123.26 | \$0.200 |

Table 19MH. Year 6, Blueberries, Organic Market, Machine Harvest, \$/acre, economic costs and returns.

| TOTAL GROSS INCOME | | | | | |
|--|----------------|------------|-----------|-------------|--------------------|
| | Quantity | Unit | \$/Unit | Total | Price/lb |
| Blueberries, fresh market | 7,200 | lbs | \$2.15 | \$15,480 | \$2.150 |
| Blueberries, processed market | 7,200 | lbs | 1.20 | 8,640 | 1.200 |
| Total gross income | 14,400 | | | \$24,120 | \$1.675 |
| VARIABLE CASH COSTS | | | | | |
| | Description | Labor | Machinery | Materials | Total Cost/lb |
| Pruning and Brush Mgmt | 100.00 hours | \$2,200.00 | | | \$0.153 |
| Weed control | | | | | 286.00 |
| Hand Weeding | 13.00 hours | 286.00 | | | 0.020 |
| Disease and Insect Control | | | | | 1,073.84 |
| Air-blast Sprayer | 12.00 times | 164.98 | 93.86 | | |
| Fungicides | | | | 450.00 | |
| Insecticides | | | | 365.00 | |
| Fertilization | | | | | 1,129.61 |
| Fertilizer Spreader | 2.00 times | 9.70 | 3.91 | | |
| Fertigation labor | 3.00 hours | 66.00 | | | |
| Fertilizer | | | | 1,050.00 | |
| Bird Control | | | | | 172.00 |
| Labor | 1.00 hours | 22.00 | | | |
| Equipment | | | | 150.00 | |
| Machine-Harvest | | | | | 3,178.00 |
| Contract Machine Harvest | 0.15 per pound | | | 2,160.00 | |
| Load & Haul Berries | 0.03 per pound | | | 432.00 | |
| Berry Commission Fee | 0.04 per pound | | | 576.00 | |
| Tissue Analysis | | | | 10.00 | |
| Irrigation | | | | | 350.00 |
| Labor | 3.00 hours | 66.00 | | | |
| Repairs & Maintenance | | | 9.00 | | |
| Water and Power | | | | 275.00 | |
| Trellis | | | | | 39.00 |
| Labor | 1.00 hours | 22.00 | | | |
| Repairs & Maintenance | | | | 17.00 | |
| Bee Hives | 4.00 hives | | | 544.00 | 0.038 |
| IPM Scouting | 5.00 hours | 110.00 | | | 0.008 |
| Mower | 6.00 times | 58.23 | 26.45 | | 0.006 |
| Portable Toilet | | | | 75.00 | 0.005 |
| Pickup | | | 53.98 | | 0.004 |
| ATV | | | 30.72 | | 0.002 |
| Shop and Machine Shed | | | | 13.25 | 0.001 |
| Miscellaneous and Overhead | | | | 200.00 | 0.014 |
| Interest: Operating Capital | 6 months | | | 185.08 | 0.013 |
| Total variable costs | | \$2,718.91 | \$217.92 | \$6,502.33 | \$9,439.17 \$0.655 |
| FIXED CASH COSTS | | | | | |
| | | | Unit | Total | Cost/lb |
| Compliance | | | acre | \$3,480.00 | \$0.242 |
| Property Insurance | | | acre | 25.00 | 0.002 |
| Property Taxes | | | acre | 30.00 | 0.002 |
| Total fixed cash costs | | | | \$3,535.00 | \$0.245 |
| FIXED NON-CASH COSTS | | | | | |
| | | | Unit | Total | Cost/lb |
| Depreciation and Interest | | | | | |
| Machinery and Equipment | | | acre | \$735.12 | \$0.051 |
| Pickup and ATV | | | acre | 72.96 | 0.005 |
| Irrigation and Trellis Systems | | | acre | 286.41 | 0.020 |
| Shop and Machine Shed | | | acre | 24.17 | 0.002 |
| Land Interest Charge | | | acre | 600.00 | 0.042 |
| Interest on Prior Years' Establishment Costs | | | acre | 2,617.95 | 0.182 |
| Total fixed non-cash costs | | | | \$4,336.61 | \$0.301 |
| Total fixed costs | | | | \$7,871.61 | \$0.547 |
| Total of all costs per acre | | | | \$17,310.77 | \$1.202 |
| Net projected returns | | | | \$6,809.23 | \$0.473 |

Table 20MH. Full production, Blueberries, Organic Market, Machine Harvest, \$/acre, economic costs and returns.

| TOTAL GROSS INCOME | | | Quantity | Unit | \$/Unit | Total | Price/lb | |
|------------------------------------|--|--|----------------|------------|-----------|------------|-------------|---------|
| Blueberries, fresh market | | | 9,000 | lbs | \$2.15 | \$19,350 | \$2.150 | |
| Blueberries, processed market | | | 9,000 | lbs | 1.20 | 10,800 | 1.200 | |
| Total gross income | | | 18,000 | | | \$30,150 | \$1.675 | |
| VARIABLE CASH COSTS | | | Description | Labor | Machinery | Materials | Total | Cost/lb |
| Pruning and Brush Mgmt | | | 100.00 hours | \$2,200.00 | | | \$2,200.00 | \$0.122 |
| Soil sample (every 4th yr) | | | | | | 3.50 | 3.50 | 0.000 |
| Sawdust Application (every 3rd yr) | | | | | | | 49.17 | 0.003 |
| Sawdust | | | 3.67 units | | | 28.33 | | |
| Loader Rental | | | | | | 20.83 | | |
| Weed control | | | | | | | 286.00 | 0.016 |
| Hand Weeding | | | 13.00 hours | 286.00 | | | | |
| Disease and Insect Control | | | | | | | 1,073.84 | 0.060 |
| Air-blast Sprayer | | | 12.00 times | 164.98 | 93.86 | | | |
| Fungicides | | | | | | 450.00 | | |
| Insecticides | | | | | | 365.00 | | |
| Fertilization | | | | | | | 1,129.61 | 0.063 |
| Fertilizer Spreader | | | 2.00 times | 9.70 | 3.91 | | | |
| Fertigation labor | | | 3.00 hours | 66.00 | | | | |
| Fertilizer | | | | | | 1,050.00 | | |
| Bird Control | | | | | | | 172.00 | 0.010 |
| Labor | | | 1.00 hours | 22.00 | | | | |
| Equipment | | | | | | 150.00 | | |
| Machine-Harvest | | | | | | | 3,970.00 | 0.221 |
| Contract Machine Harvest | | | 0.15 per pound | | | 2,700.00 | | |
| Load & Haul Berries | | | 0.03 per pound | | | 540.00 | | |
| Berry Commission Fee | | | 0.04 per pound | | | 720.00 | | |
| Tissue Analysis | | | | | | 10.00 | | |
| Irrigation | | | | | | | 350.00 | 0.019 |
| Labor | | | 3.00 hours | 66.00 | | | | |
| Repairs & Maintenance | | | | | 9.00 | | | |
| Water and Power | | | | | | 275.00 | | |
| Trellis | | | | | | | 39.00 | 0.002 |
| Labor | | | 1.00 hours | 22.00 | | | | |
| Repairs & Maintenance | | | | | | 17.00 | | |
| Bee Hives | | | 4.00 hives | | | 544.00 | 544.00 | 0.030 |
| IPM Scouting | | | 5.00 hours | 110.00 | | | 110.00 | 0.006 |
| Mower | | | 6.00 times | 58.23 | 26.45 | | 84.68 | 0.005 |
| Portable Toilet | | | | | | 75.00 | 75.00 | 0.004 |
| Pickup | | | | | 53.98 | | 53.98 | 0.003 |
| ATV | | | | | 30.72 | | 30.72 | 0.002 |
| Shop and Machine Shed | | | | | | 13.25 | 13.25 | 0.001 |
| Miscellaneous and Overhead | | | | | | 200.00 | 200.00 | 0.011 |
| Interest: Operating Capital | | | 6 months | | | 201.98 | 201.98 | 0.011 |
| Total variable costs | | | | \$2,718.91 | \$217.92 | \$7,363.89 | \$10,300.73 | \$0.572 |
| FIXED CASH COSTS | | | | | | Unit | Total | Cost/lb |
| Compliance | | | | | | acre | \$3,480.00 | \$0.193 |
| Property Insurance | | | | | | acre | 25.00 | 0.001 |
| Property Taxes | | | | | | acre | 30.00 | 0.002 |
| Total fixed cash costs | | | | | | | \$3,535.00 | \$0.196 |
| FIXED NON-CASH COSTS | | | | | | Unit | Total | Cost/lb |
| Depreciation and Interest | | | | | | | | |
| Machinery and Equipment | | | | | | acre | \$735.12 | \$0.041 |
| Pickup and ATV | | | | | | acre | 72.96 | 0.004 |
| Irrigation and Trellis Systems | | | | | | acre | 286.41 | 0.016 |
| Shop and Machine Shed | | | | | | acre | 24.17 | 0.001 |
| Land Interest Charge | | | | | | acre | 600.00 | 0.033 |
| Amortized Establishment Costs | | | | | | acre | 4,029.74 | 0.224 |
| Total fixed non-cash costs | | | | | | | \$5,748.40 | \$0.319 |
| Total fixed costs | | | | | | | \$9,283.40 | \$0.516 |
| Total of all costs per acre | | | | | | | \$19,584.13 | \$1.088 |
| Net projected returns | | | | | | | \$10,565.87 | \$0.587 |