



**2000 Black Raspberry Budget  
Retail Pre-Picked Sales  
1 Acre**

ITEM	YEAR											TOTAL/A	YOUR BUDGET	
	0	1	2	3	4	5	6	7	8	9	10			
<b>INCOME</b> <sup>1,2</sup>														
Black Raspberries Yield (lbs/A)	0	0	400	1200	2400	2800	3000	3,000	2,800	2,400	2,200	20,200		
Price 3.35 /lb.	\$0	\$0	\$1,340	\$4,020	\$8,040	\$9,380	\$10,050	\$10,050	\$9,380	\$8,040	\$7,370	\$67,670		
<b>VARIABLE COSTS/A</b>														
Cover Crop Seed <sup>3</sup>	10	60										70		
Plants <sup>4</sup>		2340										2,340		
Fertilizer <sup>5</sup>	45	5	9	17	17	17	17	17	17	17	17	191		
Lime	15											15		
Pesticides <sup>6</sup>	15	45	355	355	355	355	355	355	355	355	355	3,255		
Straw Mulch <sup>7</sup>		200										200		
Containers <sup>8</sup>	0	0	27	80	160	187	200	200	187	160	147	1,347		
Hired Labor - Establishment <sup>9</sup>	0	270										270		
Hired Labor - Winter Pruning <sup>10</sup>	0	0	194	194	239	239	239	239	239	239	239	2,057		
Hired Labor - Summer Pruning <sup>11</sup>	0	0	95	95	108	108	108	108	108	108	108	945		
Hired Labor - Harvesting <sup>12</sup>	0	0	450	1350	2700	3150	3375	3375	3150	2700	2475	22,725		
Hired Labor - Moving Berries <sup>13</sup>	0	0	2	7	13	16	17	17	16	13	12	112		
Marketing Costs <sup>14</sup>	0	0	67	200	400	467	500	500	467	400	367	3,367		
Machinery Operating Expense	5	15	10	10	15	15	15	15	15	15	15	145		
Custom Machine Hire <sup>15</sup>	33	125										158		
Miscellaneous <sup>16</sup>	15	15	15	15	15	15	15	15	15	15	15	165		
Interest on Oper. Cap. <sup>17</sup>	14	281	142	241	394	443	468	468	443	394	369	3,655		
<b>TOTAL VARIABLE COSTS</b>	167	3401	1720	2917	4770	5365	5662	5662	5365	4770	4473	44,272		
<b>FIXED COSTS/A</b>														
Operator Labor Charge <sup>18</sup>	200	55	55	55	55	55	55	55	55	55	55	750		
Mach. And Equip. Charge <sup>19</sup>	125	325	250	250	125	125	125	125	125	125	125	1,825		
Land Charge	100	100	100	100	100	100	100	100	100	100	100	1,100		
Irrigation System <sup>20</sup>		900	10	10	10	10	10	10	10	10	10	990		
Trellis <sup>21</sup>		1120										1,120		
Operating Overhead <sup>22</sup>		45	45	45	45	45	45	45	45	45	45	450		
Co-op Fee <sup>23</sup>		50	10	10	10	10	10	10	10	10	10	140		
Liability Insurance <sup>24</sup>		50	50	50	50	50	50	50	50	50	50	500		
Management Charge <sup>25</sup>	100	100	67	201	402	469	503	503	469	402	369	3,584		
<b>TOTAL FIXED COSTS</b>	525	2745	587	721	797	864	898	898	864	797	764	10,459		
<b>TOTAL COSTS</b>	692	6146	2307	3638	5567	6229	6560	6560	6229	5567	5236	54,730		
<b>RETURN ABOVE VARIABLE COSTS</b>	-167	-3401	-380	1103	3270	4015	4388	4388	4015	3270	2897	23,398		
<b>RETURN OVER TOTAL COSTS</b>	-692	-6146	-967	382	2473	3151	3490	3490	3151	2473	2134	12,940		
<b>PRESENT VALUE RETURNS</b> <sup>26</sup>	-692	-5587	-799	287	1689	1957	1970	1791	1470	1049	823	3,958		

- <sup>1</sup> Production may or may not take place in year 2 and 3. Well managed plants are more likely to produce berries in early years. Early production of berries is critical to the economic success of the enterprise.
- <sup>2</sup> One quart of raspberries weighs about 1.5 lbs.
- <sup>3</sup> Annual rye is used in year 0 then plowed under. A perennial grass is then seeded in year 1 to provide a permanent sod between rows of berries.
- <sup>4</sup> 1800 plants @ \$1.30/plant.
- <sup>5</sup> See OSUE Bulletin 782-99 "Brambles - Production, Management, and Marketing" for fertilizer recommendations.
- <sup>6</sup> See OSUE bulletin 506B2 "Ohio Commercial Small Fruit & Grape Spray Guide" for pesticide recommendations.
- <sup>7</sup> 100 bales @ \$2.00/bale. Only used in year 1.
- <sup>8</sup> Containers cost \$0.10/pint.
- <sup>9</sup> Establishment labor requires 30 hours for planting and setting up the trellis and irrigation. Labor rate is \$9.00/hour. Labor requirements below.
- <sup>10</sup> Winter pruning requires 21.5 hours in year 2 and 3 and 26.5 hours in year 4-10. Labor rate is \$9.00/hour.
- <sup>11</sup> Summer pruning requires 10.5 hours in years 2 and 3 and 12 hours in years 4-10. Labor rate is \$9.00/hour.
- <sup>12</sup> Harvesting labor estimates assume 8 pounds of berries picked per hour. Labor rate is \$9.00/hour.
- <sup>13</sup> Labor is required to move berries from field to refrigeration then to display. Labor also needed for labeling and taking containers back to field. Assumes 1000 pints can be moved per hour. Labor rate is \$9.00/hour.
- <sup>14</sup> Marketing costs for supplies and refrigeration required for retail sales. Marketing charge is \$0.25/pint. This cost can vary greatly depending upon type of facilities and marketing programs used.
- <sup>15</sup> Custom hire of plowing, disking, making raised beds, and driving trellis stakes.
- <sup>16</sup> Includes, soil tests, small tools, supplies, etc...
- <sup>17</sup> Interest charged at 9%.
- <sup>18</sup> Operator labor is for unpaid operator and/or family labor. Labor rate is \$10.00/hour.
- <sup>19</sup> Machinery and equipment charges are equivalent to the cumulative custom charges for the machine operations required for the enterprise.
- <sup>20</sup> Irrigation system includes pumps and 2" main lines at \$1500 divided over 5 acres and feeder lines to plants at 600\$. Example:  $\$1500/5 \text{ acres} + \$600/\text{acre} = \$900/\text{acre}$ . After initial installation, \$10/year is required for maintenance and repairs.
- <sup>21</sup> Trellis costs include 100 - 4" wooden posts, 35 - 5" end posts, 6000 ft. high tensile wire, and miscellaneous parts.
- <sup>22</sup> Operating overhead costs include expenses such as pick-up truck, access road, restroom facilities, retail facility, advertising, and taxes. Divided over an assumed 10 acres of production. Example:  $\$450/10A = \$45/A$
- <sup>23</sup> Co-ops are available for producers to participate in to market raspberries. If participation in a co-op does not occur, ignore associated cost. Cost reflects yearly fee. Divided over an assumed 10 acres of production. Example:  $\$100/10 \text{ acres} = \$10/\text{acre}$
- <sup>24</sup> Liability insurance covers issues such as injury, advertising, and accidents related to the commercial activity of the enterprise. Divided over an assumed 10 acres of production. Example:  $\$500/10 \text{ acres} = \$50/\text{acre}$ .
- <sup>25</sup> Management charge is an opportunity cost for the operator's management ability.

	Labor Requirements (hours)										10 TOTAL	
	0	1	2	3	4	5	6	7	8	9		
Hired Labor - Establishment	0	30	0	0	0	0	0	0	0	0	0	30
Hired Labor - Winter Pruning	0	0	21.5	21.5	26.5	26.5	26.5	26.5	26.5	26.5	26.5	228.5
Hired Labor - Summer Pruning	0	0	10.5	10.5	12	12	12	12	12	12	12	105
Hired Labor - Harvesting	0	0	50	150	300	350	375	375	350	300	275	2525
Hired Labor - Moving Berries	0	0.0	0.2	0.7	1.5	1.7	1.9	1.9	1.7	1.5	1.4	12.5
Operator Labor Charge	20	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	75

Hired Labor Rate = \$9.00 /hour

Operator Labor Rate = 10.00 /hour

<sup>26</sup> **Present Value Calculations, Explanation, and Interpretation**

Since a black raspberry operation occurs over as many as ten years, it is important to examine the time value of money associated with the enterprise. Time value of money is based on the premise that \$1 today (present value) is worth more than \$1 in the future. This is basically because the \$1 today can be invested and appreciate in value until some time in the future. Therefore in regards to the raspberry enterprise, \$1 of return in year one would be worth more than \$1 of return in year ten. Returns in future years need to be discounted to reflect the time value of money. The following table lists the future value and present value of returns from the enterprise. Explanations and interpretations of the table follow at the bottom of the page.

Year	Returns Over Total Costs	Cumulative Returns Over Total Costs	Annual Present Value	Cumulative Present Value	Discount Rate = 10%
0	-\$692	-\$692	-\$692	-\$692	<i>The discount rate is the degree to which the future values are discounted to reflect current values. It is generally assumed to be equivalent to the amount you could earn in alternative investment opportunities.</i>
1	-\$6,146	-\$6,838	-\$5,587	-\$6,279	
2	-\$967	-\$7,804	-\$799	-\$7,078	
3	\$382	-\$7,422	\$287	-\$6,791	
4	\$2,473	-\$4,949	\$1,689	-\$5,102	
5	\$3,151	-\$1,798	\$1,957	-\$3,145	
6	\$3,490	\$1,692	\$1,970	-\$1,175	
7	\$3,490	\$5,182	\$1,791	\$616	
8	\$3,151	\$8,334	\$1,470	\$2,086	
9	\$2,473	\$10,806	\$1,049	\$3,135	
10	\$2,134	\$12,940	\$823	\$3,958	

**Annuity Equivalent = \$644**

**Returns Over Total Costs** = Annual revenue generated by the enterprise

**Cumulative Returns Over Total Costs** = Running total of the annual revenue generated by the enterprise (explained below).

**Present Value** = Annual revenue generated by the enterprise discounted to present values.

**Cumulative Present Value** = The running total of the annual revenue generated by the enterprise discounted to present values (explained below).

**Annuity Equivalent** = See below

**Returns Over Total Costs vs. Annual Present Value Returns:** Over the life of the planting, the enterprise will generate \$12,940 in returns. However, since much of the return comes in future years, it is not the same as having \$12,940 in the operator's pocket today. The present value column indicates that if the operator was given the equivalent return in one lump sum today (present value), it would be worth \$3,958. The difference of the future value returns and the present value returns is a result of the time value of money.

**Cumulative Returns Over Total Costs Explained:** Cumulative returns keeps a running total of the revenue generated by the enterprise. For example, year 1 generates -\$692 and year 2 generates -\$6,146 for a cumulative revenue of -\$6,838. In year ten, the cumulative returns are the total amount generated by the enterprise over the life of the plants. Therefore, the enterprise will generate a total of \$12,940 over its 11 year life. Cumulative values are helpful in determining when initial outlays (but not interest) will be paid back. This payback occurs when the cumulative returns go from negative to positive. In this case, initial outlays are paid back by year 6.

**Cumulative Present Value Explained :** The cumulative present values are the running total of the present values generated each year by the enterprise. In this case, interest is taken into account when determining when initial outlays are paid back. Therefore, on a present value basis, initial outlays will not be paid back until year 7.

**Annuity Equivalent Explained :** An annuity equivalent is the average amount of revenue that the enterprise must generate every year to produce the total present value equivalent. For example, the raspberry budget must average \$644 in revenue every year in order to generate \$3,958 in present value revenue over the life of the enterprise. While this value may not be critical to a single enterprise, it is an excellent means of comparing the average return of various enterprises that may have different lengths of production lives. For example, a producer could use annuity equivalents to compare the average annual return on raspberries (10 year life) versus apples (25 year life).

\* Income taxes are not considered in this analysis but the investor's expected income tax rates are an important consideration in analyzing the financial impact of an investment in a perennial crop such as raspberries.