



2000 Black Raspberry Budget
"Pick Your Own" Sales
1 Acre

ITEM	YEAR										TOTAL/A	YOUR BUDGET		
	0	1	2	3	4	5	6	7	8	9			10	
INCOME ^{1,2}														
Black Raspberries Yield (lbs/A)	0	0	400	1200	2400	2800	3000	3,000	2,800	2,400	2,200	20,200		
Price 2.25 /lb.			\$900	\$2,700	\$5,400	\$6,300	\$6,750	\$6,750	\$6,300	\$5,400	\$4,950	\$45,450		
VARIABLE COSTS/A														
Cover Crop Seed ³	10	60										70		
Plants ⁴		2340										2,340		
Fertilizer ⁵	45	5	9	17	17	17	17	17	17	17	17	191		
Lime	15											15		
Pesticides ⁶	15	45	355	355	355	355	355	355	355	355	355	3,255		
Straw Mulch ⁷		200										200		
Hired Labor - Establishment ⁸	0	270	0	0	0	0	0	0	0	0	0	270		
Hired Labor - Winter Pruning ⁹	0	0	194	194	239	239	239	239	239	239	239	2,057		
Hired Labor - Summer Pruning ¹⁰	0	0	95	95	108	108	108	108	108	108	108	945		
Hired Labor - Supervisory ¹¹	0	0	90	90	90	90	90	90	90	90	90	810		
Marketing Costs ¹²					150	150	150	150	150	150	150	1,050		
Machinery Operating Expense	5	15	10	10	15	15	15	15	15	15	15	145		
Custom Machine Hire ¹³	33	125										158		
Miscellaneous ¹⁴	15	15	15	15	15	15	15	15	15	15	15	165		
Interest on Oper. Cap. ¹⁵	14	281	101	102	121	121	121	121	121	121	121	1,343		
TOTAL VARIABLE COSTS	167	3401	1223	1231	1464	1464	1464	1464	1464	1464	1464	16,269		
FIXED COSTS/A														
Operator Labor Charge ¹⁶	200	55	55	55	55	55	55	55	55	55	55	750		
Mach. And Equip. Charge ¹⁷	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 ¹⁸		900	10	10	10	10	10	10	10	10	10	990		
Trellis ¹⁹		1120										1,120		
Operating Overhead ²⁰		45	45	45	45	45	45	45	45	45	45	450		
Co-op Fee ²¹		50	10	10	10	10	10	10	10	10	10	140		
Liability Insurance ²²		50	50	50	50	50	50	50	50	50	50	500		
Management Charge ²³	100	100	45	135	270	315	338	338	315	270	248	2,473		
TOTAL FIXED COSTS	525	2745	565	655	665	710	733	733	710	665	643	9,348		
TOTAL COSTS	692	6146	1788	1886	2129	2174	2196	2196	2174	2129	2106	25,616		
RETURN ABOVE VARIABLE COSTS	-167	-3401	-323	1469	3936	4836	5286	5286	4836	3936	3486	29,181		
RETURN OVER TOTAL COSTS	-692	-6146	-888	814	3271	4126	4554	4554	4126	3271	2844	19,834		
PRESENT VALUE RETURNS ²⁴	-692	-5587	-734	611	2234	2562	2570	2337	1925	1387	1096	7,711		

¹ Production may or may not take place in year 2 and 3. Well managed plants are much more likely to produce berries in early years. Early production of berries is critical to the economic success of the enterprise.

² One quart of raspberries weighs about 1.5 lbs.

³ 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.

⁴ 1800 plants @ \$1.30/plant.

⁵ See OSUE Bulletin 782-99 "Brambles - Production, Management, and Marketing" for fertilizer recommendations.

⁶ See OSUE bulletin 506B2 "Ohio Commercial Small Fruit & Grape Spray Guide" for pesticide recommendations.

⁷ 100 bales @ \$2.00/bale. Only used in year 1.

⁸ Establishment labor requires 30 hours for planting and setting up the trellis and irrigation. Labor rate is \$9.00/hour.

⁹ 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.

¹⁰ Summer pruning requires 10.5 hours in years 2 and 3 and 12 hours in years 4-10. Labor rate is \$9.00/hour.

¹¹ Supervisory labor involves directing traffic and pickers, handling money, and providing service to the customers. Labor rate is \$9.00/hour.

¹² Marketing costs for labor and supplies required for retail sales. This cost can vary greatly depending upon type of facilities and marketing programs used.

¹³ Custom hire of plowing, disking, making raised beds, and driving trellis stakes.

¹⁴ Includes, soil tests, small tools, supplies, etc...

¹⁵ Interest charged at 9%.

¹⁶ Operator labor is for unpaid operator and/or family labor. Labor rate is \$10.00/hour.

¹⁷ Machinery and equipment charges are equivalent to the cumulative custom charges for the machine operations required for the enterprise.

¹⁸ 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.

¹⁹ Trellis costs include 100 - 4" wooden posts, 35 - 5" end posts, 6000 ft. high tensile wire, and miscellaneous parts.

²⁰ 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: $\$450/10A = \$45/A$

²¹ 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: $\$100/10 \text{ acres} = \$10/\text{acre}$

²² 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: $\$500/10 \text{ acres} = \$50/\text{acre}$.

²³ Management charge is an opportunity cost for the operator's management ability.

Labor Requirements (hours/A)

	Year											TOTAL
	0	1	2	3	4	5	6	7	8	9	10	
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 - Supervisory	0	0	10	10	10	10	10	10	10	10	10	90
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

²⁴ **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 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	-\$888	-\$7,726	-\$734	-\$7,013	
3	\$814	-\$6,912	\$611	-\$6,401	
4	\$3,271	-\$3,641	\$2,234	-\$4,167	
5	\$4,126	\$486	\$2,562	-\$1,605	
6	\$4,554	\$5,039	\$2,570	\$965	
7	\$4,554	\$9,593	\$2,337	\$3,302	
8	\$4,126	\$13,719	\$1,925	\$5,227	
9	\$3,271	\$16,990	\$1,387	\$6,614	
10	\$2,844	\$19,834	\$1,096	\$7,711	

Annuity Equivalent = \$1,255

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 \$19,834 in total returns. However, since much of the return comes in future years, it is not the same as having \$19,834 in the operator's pocket today. The cumulative present value column indicates that if the operator was given the equivalent return in one lump sum today, it would be worth \$7,711. The difference of the total returns and the total 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 \$19,834 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 5.

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 6.

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 \$1,255 in revenue every year in order to generate \$7,711 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.