



**2000 Black Raspberry Budget
Pre-Picked Wholesale 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 \$2.50 /pint	\$0	\$0	\$1,333	\$4,000	\$8,000	\$9,333	\$10,000	\$10,000	\$9,333	\$8,000	\$7,333	\$67,333		
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		
Containers ⁸	0	0	27	80	160	187	200	200	187	160	147	1,347		
Hired Labor - Establishment ⁹	0	270	0	0	0	0	0	0	0	0	0	270		
Hired Labor - Winter Pruning ¹⁰	0	0	194	194	239	239	239	239	239	239	239	2,057		
Hired Labor - Summer Pruning ¹¹	0	0	95	95	108	108	108	108	108	108	108	945		
Hired Labor - Harvesting ¹²	0	0	450	1350	2700	3150	3375	3375	3150	2700	2475	22,725		
Hired Labor - Moving Berries ¹³	0	0	2	7	13	16	17	17	16	13	12	112		
Marketing Costs ¹⁴	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 ¹⁵	33	125										158		
Miscellaneous ¹⁶	15	15	15	15	15	15	15	15	15	15	15	165		
Interest on Oper. Cap. ¹⁷	14	281	142	241	394	443	468	468	443	394	369	3,655		
TOTAL VARIABLE COSTS	167	3401	1720	2917	4770	5365	5662	5662	5365	4770	4473	44,272		
FIXED COSTS/A														
Operator Labor Charge ¹⁸	200	55	55	55	55	55	55	55	55	55	55	750		
Mach. And Equip. Charge ¹⁹	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 ²⁰		900	10	10	10	10	10	10	10	10	10	990		
Trellis ²¹		1120										1,120		
Operating Overhead ²²		23	23	23	23	23	23	23	23	23	23	225		
Co-op Fee ²³		50	100	100	100	100	100	100	100	100	100	950		
Liability Insurance ²⁴		50	50	50	50	50	50	50	50	50	50	500		
Management Charge ²⁵	100	100	67	200	400	467	500	500	467	400	367	3,567		
TOTAL FIXED COSTS	525	2723	654	788	863	929	963	963	929	863	829	11,027		
TOTAL COSTS	692	6123	2374	3705	5633	6294	6625	6625	6294	5633	5302	55,298		
RETURN ABOVE VARIABLE COSTS	-167	-3401	-386	1083	3230	3968	4338	4338	3968	3230	2860	23,062		
RETURN OVER TOTAL COSTS	-692	-6123	-1040	295	2367	3039	3375	3375	3039	2367	2031	12,035		
PRESENT VALUE RETURNS ²⁶	-692	-5567	-860	222	1617	1887	1905	1732	1418	1004	783	3,450		

- ¹ 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.
- 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 Containers cost \$0.10/pint.
- ⁹ Establishment labor requires 30 hours for planting and setting up the trellis and irrigation. Labor rate is \$9.00/hour. Labor requirements below.
- ¹⁰ 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. Labor requirements below.
- ¹¹ Summer pruning requires 10.5 hours in years 2 and 3 and 12 hours in years 4-10. Labor rate is \$9.00/hour. Labor requirements below.
- ¹² Harvesting labor estimates assume 8 pounds of berries picked per hour. Labor rate is \$9.00/hour. Labor requirements below.
- ¹³ Labor is required to move berries from field to refrigeration then to truck. 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. Labor requirements below.
- ¹⁴ Marketing costs for supplies and refrigeration. Marketing charge is \$0.25/pint. This cost can vary greatly depending upon type of facilities and marketing programs used.
- ¹⁵ Custom hire of plowing, disking, making raised beds, and driving trellis stakes.
- ¹⁶ Includes, soil tests, small tools, supplies, etc...
- ¹⁷ Interest charged at 9%.
- ¹⁸ Operator labor is for unpaid operator and/or family labor. Labor rate is \$10.00/hour.
- ¹⁹ Machinery and equipment charges are equivalent to the cumulative custom charges for the machine operations required for the enterprise.
- ²⁰ 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.
- ²¹ Trellis costs include 100 - 4" wooden posts, 35 - 5" end posts, 6000 ft. high tensile wire, and miscellaneous parts.
- ²² Operating overhead costs include expenses such as pick-up truck, access road, and taxes. Divided over an assumed 10 acres of production. Example: $\$225/10A = \$22.5/A$
- ²³ 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: $\$100/10 \text{ acres} = \$10/\text{acre}$
- ²⁴ 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: $\$500/10 \text{ acres} = \$50/\text{acre}$
- ²⁵ Management charge is an opportunity cost for the operator's management ability.

	Labor Requirements											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 - 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					

²⁶ **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 (future value). This is basically because the \$1 today can be invested and appreciate in value until some time in the future, whereas \$1 in the future can not appreciate in value or collect interest. 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% <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>
0	-\$692	-\$692	-\$692	-\$692	
1	-\$6,123	-\$6,815	-\$5,567	-\$6,258	
2	-\$1,040	-\$7,855	-\$860	-\$7,118	
3	\$295	-\$7,560	\$222	-\$6,896	
4	\$2,367	-\$5,193	\$1,617	-\$5,279	
5	\$3,039	-\$2,153	\$1,887	-\$3,392	
6	\$3,375	\$1,222	\$1,905	-\$1,487	
7	\$3,375	\$4,597	\$1,732	\$245	
8	\$3,039	\$7,637	\$1,418	\$1,663	
9	\$2,367	\$10,004	\$1,004	\$2,667	
10	\$2,031	\$12,035	\$783	\$3,450	
Annuity Equivalent =		\$561			

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 \$12,035 in total returns.

However, since much of the return comes in future years, it is not the same as having \$12,035 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 \$3,450. 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 -\$6,123 for a cumulative revenue of -\$6,815. 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 \$12,035 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 \$561 in revenue every year in order to generate \$3,450 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.