

Raspberries

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1991 production costs in northern Idaho 16 1993

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This budget shows typical costs of producing red raspberries in northern Idaho for sale in the fresh market. Assumptions used in constructing this budget are discussed below. This budget represents typical cultural practices based on limited grower surveys. However, individual operations will differ depending on management style and horticultural practices.

The raspberry stand

A 10-acre stand is assumed. Years 0 and 1 are the establishment years. Land preparation occurs in year 0, followed by planting in year 1. Partial production occurs in years 2 and 3, and in years 4 through 7 the stand is in full production. Starting in year 8, the existing stand declines in quality and yield, resulting in a 10 percent decline in production each year during years 8 through 10.

Typically, when the stand has declining yields and quality due to mature plantings, the recommended practice would be to replant 33 percent of the rasp-

berry stand annually in years 8 through 10. Replanting was not accounted for in this budget, but should be considered as a long-term cost. Table 1 provides per-acre raspberry yields, per-acre total costs, and cost per pound for the assumed 10-acre stand.

Machinery and equipment

Equipment, tractors, and vehicles used in this operation are typical for a farm growing raspberries in northern Idaho. Table 2 provides detailed information on all machinery and equipment used in the operation. The machinery costs estimated in Table 2 were generated using standard coefficients from the American Society of Agricultural Engineers.

The values assumed on all machinery and equipment reflect 1991 prices. One third of the pickup use is devoted to the raspberry stand. The other two-thirds is for other farm production or household use. All other equipment is assumed to be used entirely for the raspberry operation.

Table 1. Assumptions of red raspberry production over the 10-year expected life of the stand.

Year	Stage of production	Yield (lb/acre)	Cost/acre (\$)	Cost/pound (\$)
0	Preparation	0	1,542.67	0
1	Establishment	0	3,392.25	0
2	Partial production ¹	1,200	4,332.32	3.61
3	Partial production ²	5,200	6,672.24	1.28
4	Full production	6,500	7,391.43	1.14
5	Full production	6,500	7,391.43	1.14
6	Full production	6,500	7,391.43	1.14
7	Full production	6,500	7,391.43	1.14
8	Down 10% from year 7 ³	5,850	7,050.73	1.21
9	Down 20% from year 7 ³	5,200	6,710.03	1.29
10	Down 30% from year 7 ³	4,550	6,369.33	1.40

¹The lower cost per acre in Year 2 relative to full production years is caused by: not spraying with fungicides and insecticides, saving \$72.18; lowering interest on operating capital by \$151.57; a reduction in overhead of \$145.55; lowering harvest labor by \$2,650; reducing the purchase of raspberry flats by \$128.02; increasing weeding labor by \$84.00; and increasing mowing costs by \$4.21.

²The lower cost per acre in Year 3 relative to full production years is caused by: lowering harvest labor by \$650; reducing the purchase of raspberry flats by \$31.40; lowering weeding labor by \$42.00; and increasing mowing costs by \$4.21.

³The lower cost per acre in Years 8, 9, and 10 is caused by lowering harvest labor by \$325 and reducing the purchase of raspberry flats by \$15.70. Each year's costs are \$340.70 less than the previous year to reflect this decrease in harvest labor and purchases of raspberry flats.

Resources

This budget assumes land is owned by the operator and was previously used for dryland grazing. Property taxes are \$6.25 per acre.

Table 3 includes information on the permanent structures needed for the raspberry operation. Purchase price and useful life will vary depending on type of materials used and age of the facility.

This 10-acre raspberry stand is equipped with a drip irrigation system. The cost of the system, including installation, is approximately \$15,000. Table 4 includes detailed information about the irrigation system. The system is supplied by surface water.

All labor in this operation is classified as either general hired, owner labor, or harvest labor. General hired labor is valued at \$6.25 per hour, and includes worker's compensation, unemployment insurance, and other labor overhead expenses. Owner labor is valued at \$7.00 per hour, and harvest labor is \$0.50 per pound of harvested raspberries.

Establishment costs

The cost of establishing the raspberry stand must be recovered over the stand's useful life. The process involves carrying forward, with interest, total establishment costs for year 0 (the preparation year) and year 1 (the planting year). Preparation year and establishment-year costs are presented in Tables 5 and 6. Total establishment costs (including interest) for both years (\$5,120.04) are amortized over the useful life of the raspberry stand (9 years at 12 percent interest). Amortized establishment costs are identified under fixed costs in Table 7.

Budgets

The two categories of costs listed in the budgets are fixed and variable costs. Variable costs are costs that the producer has direct control over and can be increased or decreased at his/her discretion. These costs increase as the level of production increases. Examples of variable costs are raspberry plants, fertilizer, chemicals, fuel, repairs, hired labor, and interest on operating capital. Fixed costs are costs that remain unchanged no matter how much is produced or whether production takes place at all. These costs

are those associated with owning capital assets and certain overhead costs, and include depreciation, taxes, insurance, and interest.

Fixed and variable costs can be either cash or noncash costs. Cash costs require payment, which means they are out-of-pocket expenses. They can be variable like fuel or fixed like property taxes. These expenses must be paid outright. Noncash costs do not necessarily need to have an immediate "cash" payment. For example, when the owner provides labor, cash is not exchanged, hence it is a noncash cost. If the owner chooses to hire labor for that operation, then the payment for labor becomes a cash cost. Both cash and noncash costs are treated as expenses in this budget.

Long-term, intermediate, and short-term capital are used in this budget to finance establishment costs, machinery, equipment, permanent structures, irrigation, and operating inputs. Interest on operating capital is treated as a cash expense. The cost of operating capital is 12 percent. Overhead accounts for 5 percent of each year's variable costs. (University of Idaho field crop and livestock budgets generally assume an overhead rate of 2 percent, but a management-intensive, high-valued crop like raspberries is expected to have a higher overhead cost. Thus, a 5 percent overhead rate is used.)

For further reading

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Table 2. Estimated equipment investment for a 10-acre northern Idaho raspberry farm.

Item	Size	1991 price (\$)	Annual use	Years to trade	Cost/hour (\$)	Cost/year (\$)
Tractor	24 hp	10,700	100 hr	15	14.09	1,409.00
Trailer	8 ft	1,000	4 hr	15	0.32	1.28
Boom sprayer	50 gal	650	50 hr	15	1.13	56.50
Fertilizer spreader	10 ft	3,500	15 hr	15	31.46	471.90
Cone fertilizer attachment	—	525	10 hr	15	—	—
Mower	5 ft	1,000	10 hr	15	11.18	111.80
Cultivator	8 ft	700	18 hr	15	4.42	79.56
Spike tooth harrow	10 ft	600	10 hr	15	0.38	3.80
Pickup	½ ton	12,600	1,000 mi	7	0.26/mi	260.00
Misc. equipment (handspreader, backpack sprayer, shears, weedeater, scale, buckets, 15 picking stands)		625				

Table 3. Permanently installed resources for a 10-acre northern Idaho raspberry farm.

Item	Size/type	1991 purchase price (\$)	Useful life
Refrigeration	10 x 16 ft	10,000	20 yr
Trellis	3 wire	13,200	20 yr
Deer fence	New Zealand	3,195	20 yr

Table 4. Drip irrigation system for 10 acres of raspberries.

Item	Size	Quantity	Cost (\$)
Mainline PVC	1½"	700 ft	389
Tubing (\$.12/ft)		44,000 ft	5,280
Valves (\$24 each)		10	240
Fittings and tees			240
Timer			72
Major shut-off	2"		160
Filters			600
Emitters (\$.16 each)		22,000	3,520
Wire (\$.045/ft)	12 gauge	44,000 ft	1,980
Fertilizer injector 6 gal/min			160
Power pump and power unit	3 hp		2,000
Total cost			14,641

Note: Installation labor requirements for 10 acres are 400 hours of hired labor and 180 hours of owner labor. This drip irrigation system is supplied by surface water.

Table 5. Costs per acre in preparation year (year 0) for red raspberries in northern Idaho.

Activity	Machinery (\$)	Labor (\$)	Materials (\$)	Total (\$)	Your cost
Variable costs					
Custom soil tests	—	—	—	26.50	_____
Percolation test	1.50	7.70	—	9.20	_____
Spray nonselective herbicide (twice)	1.34	11.64	60.78	73.76	_____
Custom plow	—	—	—	12.50	_____
Custom subsoil	—	—	—	12.50	_____
Harrow (twice during year)	0.70	3.50	—	4.20	_____
Adjust soil pH (liming)	1.11	7.76	345.00	353.87	_____
Cultivate (twice during year)	1.16	5.82	—	6.98	_____
Custom backhoe	—	—	—	210.00	_____
Irrigation main line installation	8.10	123.20	—	131.30	_____
Custom rodent control	—	—	—	15.00	_____
Deer fence installation	—	107.50	—	107.50	_____
Pickup	—	—	—	152.25	_____
Overhead (5%)	—	—	—	55.78	_____
Interest on operating capital	—	—	—	54.38	_____
Total variable costs	—	—	—	1,225.72	_____
Fixed costs					
Machinery and equipment	—	—	—	229.75	_____
Land (taxes and interest)	—	—	—	30.25	_____
Permanent fixtures	—	—	—	56.95	_____
Total fixed costs	—	—	—	316.95	_____
Total costs	—	—	—	1,542.67	_____

Table 6. Costs per acre in establishment year (year 1) for red raspberries in northern Idaho.

Activity	Machinery (\$)	Labor (\$)	Materials (\$)	Total (\$)	Your cost
Variable costs					
Custom soil test	—	—	—	10.00	_____
Fertilize:					
Borated gypsum	0.54	2.33	21.00	23.87	_____
Super phosphate	0.54	2.33	124.00	126.87	_____
Custom plow	—	—	—	12.50	_____
Mark rows	1.50	7.70	—	9.20	_____
Install drip irrigation system	—	376.00	—	376.00	_____
Cultivate (5 times during year)	2.26	11.31	—	13.57	_____
Seed covercrop	0.39	1.68	54.15	56.22	_____
Set up trellis	12.13	286.44	—	298.57	_____
Trellis maintenance	—	4.70	—	4.70	_____
Planting raspberries	—	112.00	700.00	812.00	_____

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Table 6. (cont'd).

Activity	Machinery (\$)	Labor (\$)	Materials (\$)	Total (\$)	Your cost
Spray:					
Pre-emergent herbicides	0.96	8.38	46.10	55.44	_____
Grass herbicide	0.48	4.19	19.96	24.63	_____
Weeding (5 times during year)	—	224.00	—	224.00	_____
Drip irrigation system operating expense	—	—	—	86.76	_____
Custom rodent control	—	—	—	15.00	_____
Deer fence maintenance	—	2.60	—	2.60	_____
Pickup	—	—	—	152.25	_____
Overhead (5%)	—	—	—	114.72	_____
Interest on operating capital	—	—	—	133.05	_____
Total variable costs	—	—	—	2,551.95	_____
Fixed costs					
Machinery and equipment	—	—	—	297.74	_____
Land (taxes and interest)	—	—	—	30.25	_____
Permanent fixtures	—	—	—	284.79	_____
Drip irrigation system	—	—	—	227.52	_____
Total fixed costs	—	—	—	840.30	_____
Total costs	—	—	—	3,392.25	_____

Table 7. Costs per acre in full production years (years 4-7) for red raspberries in northern Idaho.

Activity	Machinery (\$)	Labor (\$)	Materials (\$)	Total (\$)	Your cost
Variable costs					
Custom soil tests	—	—	—	10.00	_____
Custom foliage test	—	—	—	17.50	_____
Spray:					
Fungicide (twice)	0.96	8.38	13.28	22.62	_____
Pre-emergent herbicide (twice)	0.96	8.38	90.72	100.06	_____
Grass herbicide	0.48	4.19	19.96	24.63	_____
Summer fungicide	0.48	4.19	15.40	20.07	_____
Insecticides	0.96	8.38	20.15	29.49	_____
Pruning (twice during year)	—	560.00	—	560.00	_____
Fertilize:					
Gypsum, K, NH ₄ NO ₃	0.39	1.68	144.00	146.07	_____
Ammonium nitrate	0.39	1.68	21.00	23.07	_____
Mowing (4 times during year)	1.76	15.08	—	16.84	_____
Bees	—	—	20.00	20.00	_____
Harvesting	—	3,250.00	—	3,250.00	_____
Portable toilet	—	—	—	24.00	_____
Refrigerator	—	—	—	7.40	_____
Raspberry flats	—	—	157.00	157.00	_____
Weeding (5 times during year)	—	210.00	—	210.00	_____
Drip irrigation system operating expense	—	—	—	86.76	_____
Custom rodent control	—	—	—	15.00	_____
Trellis maintenance	—	4.70	—	4.70	_____
Deer fence maintenance	—	2.60	—	2.60	_____
Pickup	—	—	—	152.25	_____
Overhead (5%)	—	—	—	245.00	_____
Interest on operating capital	—	—	—	255.66	_____
Total variable costs	—	—	—	5,400.72	_____
Fixed costs					
Establishment costs	—	—	—	973.78	_____
Machinery and equipment	—	—	—	300.13	_____
Land (taxes and interest)	—	—	—	30.25	_____
Permanent fixtures	—	—	—	457.09	_____
Drip irrigation system	—	—	—	227.52	_____
Total fixed costs	—	—	—	1,990.71	_____
Total costs	—	—	—	7,391.43	_____

Note: The differences in costs between full production years and partial production years are discussed in Table 1.

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