Raspberry production: Overview

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This publication provides general information about commercial raspberry production in Idaho and is intended for beginning growers. Additional information is available through the University of Idaho Cooperative Extension System office in your county. Particularly helpful publications are listed in the "For further reading" section at the end of this article.

Raspberries are well-adapted to many growing regions in Idaho, and commercial production is potentially profitable. As with most fruit crops, raspberries require a long-term commitment. Commercial plantings generally take 3 or 4 years to come into full production, and produce for an additional 6 or 7 years before replacement is necessary. Raspberries are labor-intensive, and investments for trellises, irrigation systems, deer fences, and cooling facilities are high.

Commercial success depends on selecting and preparing an excellent site and then planting suitable cultivars. Raspberries are susceptible to root rot and require a light, well-drained soil at least 18 inches deep. An optimum site has a slope of about 2 to 4 percent to provide drainage for both water and cold air during the spring and fall. The soil should have a pH between 5.8 and 7.0 (pH 7.0 is neutral) and a low salt content. Production on alkaline soils (pH above 7.0) is possible, but can present some difficulties. Raspberries cannot tolerate drought and require irrigation.

Matching suitable cultivars to your site is also critical for success. Raspberry cultivars vary widely in cold hardiness. Black raspberries are hardy only to between -5° and -10°F. Purple raspberries are hybrids between red and black raspberries and are hardy to between -10° and -15°F. Because of the potential for freezing injury, commercial production of black and purple raspberries in most of Idaho is risky. Red raspberries are the hardiest of the caneberries, and many cultivars can survive temperatures of -20°F or colder. For information on Idaho's climate, refer to EXT 744, *Specialty Farming in Idaho: Site Selection*.

Raspberries bear their crop either during the summer (summer-bearers) or both in the fall and summer (fall-bearers). Summer-bearing raspberries produce a single crop of berries on 1-year-old canes during July and August. Fall-bearing cultivars produce a crop of berries on current–season canes during the fall. If the bearing canes are left, they will produce a second, lighter crop the following summer. Most commercial growers harvest only the fall crop. Fall-bearing raspberries can be damaged by fall frosts and are normally recommended for commercial production only in southwestern Idaho or in lower elevations, such as Lewiston.

Raspberry fruits are among the most delicate and perishable of all crops. For fresh use the berries must be picked at least every other day during the harvest, must be handled as gently and as little as possible, must be cooled immediately after picking, and must reach consumers within 48 hours. Raspberries can be picked by machine, but are then only suitable for processing.

Management

Raspberry production is complex, and intensive management is needed to successfully produce a commercial crop. You must know the physiological needs of the crop, proper cultural practices, and identification and control of insects, diseases, weeds, and pests. Each raspberry variety responds differently to the environment, and each has its own specific cultural requirements (see EXT 739 *Berry Varieties for Idaho*).

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Producing raspberries commercially is labor- and capital- intensive, and the undertaking must be managed like a business to be successful. You must understand financing, cash flow, business management, and marketing. Attention to detail and meticulous record keeping are essential. You should also determine whether local and state permits are required for producing and marketing your crop. Liability insurance may also be needed before food products are sold.

Costs and returns

Establishing and maintaining a commercial raspberry enterprise is expensive compared to most of Idaho's traditional agricultural enterprises. Before purchasing land, equipment, or plants, you should develop a budget to determine if you have adequate resources not only to successfully establish and operate a raspberry farm, but also to survive a poor crop or marketing year. You should not expect a positive cash flow until at least the second growing season for fall-bearing raspberries and the third growing season for summer-bearing raspberries. Advance budgeting is also necessary before expanding an existing operation.

Plan to spend at least $5,000 per acre, not including labor, for site preparation, plants, a trellis system, and an irrigation system. Refrigerated storage facilities will be required for all but strictly U-pick operations. A deer fence is a necessity in many parts of Idaho. Pruning and trellis costs are less for fall-bearing raspberries than for summer-bearing cultivars. Labor expenses for raspberries are high. For harvesting during the peak of the season, you will need 8 to 10 experienced pickers per acre. See Table 1 for typical costs for establishment and production. Bear in mind that these costs are only approximate and will vary according to the operation and existing facilities.

Summer-bearing raspberries produce about 10 to 20 percent of a full crop during their second season, about 80 percent of a full crop in their third season, and should be into full production in their fourth season. Although yields of 10,000 pounds per acre or more are possible, most commercial growers in the Pacific Northwest average 3,000 to 7,000 pounds per acre. Fall-bearing raspberries yield less than summer-bearers, but reach full production in their second or third season. Even when growers provide excellent care, up to 40 percent of harvested berries fail to meet the grading standards for fresh use due to poor color, shape, or size. Alternative markets for processing-grade berries should be established.

On the positive side, fresh raspberries command high prices. High-quality fruit can sell for $3.50 per pound or more on the wholesale market, although average wholesale prices are less, and transportation is expensive. Local berries sell for about $1.00 to $2.00 per pound for prepicked berries, and U-pick berries sell for less. Processing-grade red raspberries usually sell for about $0.30 to $0.60 per pound. Prices for fresh and processing-grade black raspberries fluctuate widely, ranging from about $0.50 to $1.70 per pound in recent years.

Marketing

You need to determine your market before planting your raspberries, since the type of market largely controls the selection of cultivars, trellis systems, harvesting methods, and transportation. Whatever market you select, remember raspberries are extremely perishable, and fresh berries must reach consumers within 48 hours of harvest.

Direct marketing — Selling berries directly to consumers through roadside stands, farmers' markets, or

Table 1. Typical raspberry establishment and production costs in 1991 dollars.

	Summer-bearing raspberries	Fall-bearing raspberries
Costs that vary minimally with acreage ($)[1]		
Irrigation pump	2,000	2,000
Commercial cooling unit	10,000	10,000
	Costs per acre ($)	
Pre-establishment year (one-time costs)		
Cultural practices[2]	990	990
Install mainline and pump	290	290
Deer fence materials and installation	425	425
Fixed costs[3]	260	260
Total	1,965	1,965
Establishment year (one-time costs)		
Trellis system	1,620	1,080
Irrigation materials and installation	1,480	1,480
Plant materials	700	700
Cultural practices	1,480	1,480
Fixed costs	320	320
Total	5,600	5,060
Bearing years		
Cultural practices	2,150	1,650
Harvest labor[4]	3,250	2,600
Fixed costs[5]	1,260	1,160
Total	6,660	5,410

[1]For operations of up to 10 acres, the initial cost of an irrigation pump and commercial cooling facility are about the same. Total cost for these items may be lower for small acreages, but costs will be higher on a per-acre basis.

[2]Cultural practices include all labor, fertilizer, pesticides, and other supplies needed to establish and care for the planting. Harvest labor and materials are listed separately. Labor costs are estimated to be $6.25 per hour for hired labor and $7.00 per hour for owner labor.

[3]Fixed costs include land ownership, machinery, and equipment costs.

[4]Harvest labor is calculated at 50 cents per pound of raspberries harvested.

[5]Fixed costs during the bearing years include a payment to amortize costs incurred during the first 2 years when no revenue was available to pay these costs.

U-pick operations simplifies marketing and transportation activities. Local rural markets are easily flooded, however, and market potential is better near large population centers. In some areas, tourists represent an additional market for prepicked berries. Be sure to check on local requirements for roadside stands and U-pick operations.

Wholesale marketing —Marketing berries in the wholesale fresh or processing markets is more demanding than direct local marketing, and is normally only suitable for large producers or grower cooperatives. Grading, packaging, storage, and transportation must meet certain guidelines. Transportation across state or national borders often requires special permits and tariffs. Successful wholesale marketing requires expertise in postharvest physiology, refrigeration, and transportation.

Value-added products — Raspberries lend themselves to purees, jams, concentrates, juices, wines, candies, and gourmet vinegars. Local specialty products offer potential for niche marketing, especially where there is access to tourists or a large population center.

Risks

Weather plays a major role in raspberry production. Severe winter temperatures, a late freeze, or an early frost can destroy a crop. Excessive rain increases fruit, cane, and root diseases, and can interfere with pollination, fruit set, and harvest activities. Very hot, dry weather takes its toll in poor fruit quality, reduced yields, and cane death. Raspberries are susceptible to many insects and diseases. Animals also represent a risk; new raspberry plantations have been eaten to the ground by deer. Weeds can easily overrun a raspberry field and choke off production unless your control efforts are diligent.

Labor, marketing, and transportation represent risks as well. Once raspberries ripen, they must be harvested immediately. A labor strike or shortage can cause serious crop losses. Because raspberries are very perishable, those intended for the fresh wholesale market must be sold before they are picked. A sudden slump in the market caused by overproduction in other growing regions can substantially reduce your sales and profits. Bad weather discourages customers from visiting U-pick operations. A trucking strike or delayed delivery can leave your berries rotting on a loading dock.

Risks can be minimized. Proper site and cultivar selection, proper site preparation, a reliable irrigation system, and diligence in carrying out cultural practices will reduce crop losses. Advance planning and marketing will reduce risks associated with harvesting, transporting, and selling a crop.

You still want to grow raspberries?

Okay, you still think raspberries are the crop to raise. So what do you do now? Start small. A major reason raspberry farms fail is that growers tend to start with too much acreage and too little knowledge and experience. If you are not already experienced in the *commercial* production of raspberries, start with no more than 1/2 to 1 acre. Growing a few dozen raspberry plants in the backyard will not prepare you for the intense management needed for even a small commercial operation.

After you gain some experience, if you still consider commercial raspberry production feasible and desirable, you will have developed many of the skills needed to successfully farm a larger acreage. You may also find that growing raspberries is not for you. It's better to find that out with a small investment rather than with a large one.

Diversification into raspberries from another crop by an experienced farmer who already owns much of the needed equipment is more likely to be successful than starting a raspberry farm from scratch. However, the need to start small and gain experience with raspberries before beginning a full-scale commercial operation is still critical.

For further reading

Compendium of Raspberry and Blackberry Diseases and Insects. M. Ellis et al. (eds.). 1991. APS Press, 3340 Pilot Knob Road, St. Paul, MN 55121.

Small Fruit Crop Management. G. Galletta and D. Himelrick (eds.). 1990. 608 pages. Prentice Hall, Rt. 9W, Englewood Cliffs, NJ 07632.

PNW 176 Commercial Red Raspberry Production. Bulletin Office, Cooperative Extension, Cooper Publications Building, Washington State University, Pullman, WA 99164-5912. ($1.50)

From the University of Idaho:

CIS 943 Raspberries: 1991 Production Costs in Northern Idaho (50 cents)

EXT 739 Berry Varieties for Idaho ($2.00)

EXT 744 Specialty Farming in Idaho: Site Selection ($1.00)

To order the above University of Idaho publications and find out about others that are available, including production guides, enterprise budgets, and information about cultivars, contact the University of Idaho Cooperative Extension System office in your county or write to Agricultural Publications, Idaho Street, University of Idaho, Moscow, Idaho 83843, or call (208) 885-7982. Idaho residents add 5 percent sales tax.

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