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Blueberry production: overview

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Blueberries are well-adapted to some Idaho growing regions, and commercial production is potentially profitable. As with most fruit crops, blueberries require a long-term commitment. Plantings take 6 to 8 years to come into full production and can remain in place for 50 years or more. Blueberries are labor-intensive and investments for irrigation systems, deer fences, and cooling facilities are high.

Commercial success depends first of all on selecting and preparing an excellent site. Blueberries require well-drained soil, preferably 18 inches or more deep. An optimum site has a slope of about 2 to 4 percent to provide for water and cold-air drainage. The soil should have a pH between 4.2 and 5.0 (pH 7.0 is neutral) and should have a low salt content. Blueberries do not grow well in alkaline or calcareous soils, which are present in many parts of southern Idaho. Blueberries cannot tolerate drought and require irrigation.

Matching suitable blueberry cultivars to your site is also critical for commercial success. Cultivars vary widely in their cold hardiness, with most highbush cultivars hardy to about -20°F. Some highbush and highbush-lowbush hybrids are hardy to between -30°F and -35°F, provided that climatic conditions allow the plants to develop full hardiness.

Blueberries are firmer than many other small fruits and have a shelf life of 2 to 4 weeks when handled properly. They are usually picked every 5 to 10 days. Berries intended for the fresh market are usually picked by hand. Because of high labor costs, some growers use machines to pick their blueberries, which are then canned or frozen.

North America leads in blueberry production, worldwide. In 1989, commercial highbush production in North America totaled almost 150 million pounds from about 44,000 acres. Michigan is the leading

highbush blueberry producer, followed by New Jersey, North Carolina, British Columbia, Oregon, New York, and Washington. Lowbush production in 1989 contributed 68 million pounds of berries from 119,000 acres of managed wild stands in Maine and the Canadian Maritime Provinces.

Management

Blueberry production is complex, and intensive management is needed to produce a successful commercial crop. Growers must know the physiological needs of the crop, proper cultural practices, and identification and control of insects, diseases, weeds, and pests. Cultivars differ in their responses to the environment, and cultural practices must suit the cultivars grown.

Prospective growers must understand financing, cash flow, business management, and marketing; attention to detail and meticulous record keeping are crucial. Prospective growers should find out whether local and state permits are required for producing and marketing their crop. Insurance may also be needed before food products are sold.

Costs and returns

Establishing and maintaining a blueberry enterprise is expensive. Positive cash flows should not be expected until at least the fourth growing season. Thus, before purchasing land or planting stock, you should develop a budget to ensure you have adequate capital not only to establish a successful enterprise, but also to survive poor crop or marketing years. Advance budgeting is also necessary before expanding an existing operation.

Plan to spend about \$5,000 per acre for site preparation, plants, and an irrigation system. Refrigerated storage facilities may be needed, and a fence is

usually a necessity to prevent depredation by deer and bear. Labor expenses for blueberries are less than for raspberries or strawberries, but are still moderately high. For harvesting a mature planting by hand, you will need 10 to 20 experienced pickers per acre. Plan to harvest every 5 to 10 days. See Table 1 for typical costs for establishment and production years.

For the first 2 or 3 years after planting, you need to remove blueberry flowers and fruit in order to develop strong plants. In the fourth season, a typical blueberry operation will produce about 500 pounds of berries per acre; in the fifth season, 2,000 to 3,000 pounds per acre; and beginning in the sixth or seventh season, from 4,000 to 6,000 pounds. Since not all berries meet fresh market standards, you should find alternative markets for processing berries.

During the mid- to late 1980s, wholesale prices paid to Pacific Northwest growers for fresh and processing berries averaged between \$0.50 and \$0.75 per pound. During the past several years, the number of acres in blueberry production nationally has increased substantially. In Oregon and Washington alone, production has jumped by 194 percent since 1980. With the development of commercial rabbiteye blueberry cultivars, blueberry production, traditionally limited to northern states, has moved as far south

as Florida. Unless consumption increases, future markets and prices for blueberries are likely to soften in response to abundant supply.

Marketing

You need to determine your market before planting, since the type of market largely controls the selection of cultivars, harvesting methods, and cooling systems. By planting several cultivars that ripen at different times, you can harvest berries from mid-summer until late fall.

Direct marketing — Selling berries directly to consumers through roadside stands, farmer's markets, or U-pick operations simplifies marketing and transportation activities. Local rural markets are easily flooded, however. Market potential is better near large population centers or tourist areas. In any case, don't grow more berries than you can sell.

Wholesale marketing — Selling berries in 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 standards. 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 — Blueberries lend themselves to purees, jams, concentrates, candies, pastries, and other processed commodities. Local specialty products offer potential for niche marketing, especially where there is access to tourists or a large population center.

Risks

Severe winter temperatures or a late spring frost can destroy crops. Excessive rain increases diseases and can interfere with pollination, fruit set, and harvest. Very hot, dry weather takes its toll in poor fruit quality and yield. Rodents, deer, and insects can severely damage a plantation; weeds can easily overrun fields, choking off production.

Labor, marketing, and transportation represent risks as well, but less for blueberries than for more fragile fruits such as raspberries. A labor strike or shortage can result in crop losses. A trucking strike or delayed delivery can leave your berries rotting on a loading dock. A sudden slump in the market caused by overproduction in other growing regions can seriously damage sales and profits. Bad weather discourages customers from visiting U-pick operations.

Risks can be minimized: proper site and cultivar selection, proper site preparation, a reliable irrigation

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

Costs that vary little with acreage (\$) ¹	
Irrigation pump and installation	2,300
Commercial cooling unit	10,000
Costs per acre (\$)	
Pre-establishment and establishment years (one-time costs)	
Land preparation	915
Plants and planting	2,085
Cultural practices ²	765
Fixed costs ³	1,000
Total	4,765
Non-bearing years	
Cultural practices	1,100
Fixed costs	1,300
Total	2,400
Production years	
Cultural practices	1,130
Harvest materials and labor	2,500
Fixed costs	1,600
Total	5,230

¹For operations of up to 10 acres, the initial cost of an irrigation pump and commercial cooling facility are about the same. For small acreages, the costs per acre for these items are disproportionately high.

²Cultural practices include all labor, fertilizer, pesticides, and other supplies needed to establish and care for the planting. Planting and harvest labor and materials are listed separately. Labor costs for this table were estimated to be \$7.00 per hour.

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

system, and diligence in carrying out cultural practices will reduce crop losses; solid business planning, management, and marketing reduce risks associated with producing, transporting, and selling the fruit. Given the high costs of establishment and production, along with a long break-even period, the best risk management strategy may be *not* to grow blueberries commercially. There is no substitute for careful planning; don't rush into commercial production.

You still want to grow blueberries?

Okay, you still have visions of blueberries in your head. So what do you do now? A major reason blueberry 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 blueberries, start with no more than 1/2 to 1 acre of berries. Growing a few blueberry plants in the backyard will not prepare you for the intense management needed for even a small commercial operation. If, after a few years, you still consider growing blueberries practical and desirable, you will have developed many of the skills needed to successfully farm a larger acreage. You may also find that growing blueberries is not for you. It's better to find that out with a small investment rather than with a large one.

A second reason blueberry enterprises fail is that no income is available from the operation for at least 3 or 4 years, and full production takes 6 to 8 years. A Cornell University enterprise budget indicates that, in New York, U-pick blueberry growers may not recoup their investment costs and show a net profit until 13 years after planting. You must be prepared to carry investment costs and continue regular care for years

before you see a return on your investment. Communication with and commitments from your lenders will be critical.

Conclusion

If you already have a farm and much of the needed equipment, you may see a long-term benefit from putting portions of your farm into blueberry production. Establishing a blueberry farm from scratch, however, is likely to be a very risky endeavor.

For further reading

Lists of recommended publications and organizations, recommended cultivars, production guides, enterprise budgets, and other resource materials are available through the University of Idaho Cooperative Extension System office in your county.

To order copies of this or other University of Idaho College of Agriculture publications, contact the University of Idaho Cooperative Extension System office in your county or write to Agricultural Publications, Idaho Street, University of Idaho, Moscow, Idaho 83843-4196 or call (208) 885-7982.

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