



Strawberry production: Overview

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Strawberries are adapted to many growing regions in Idaho, and commercial production is potentially profitable. Strawberries require a fairly long-term commitment, since they are normally harvested during their second, third, and fourth seasons after planting. Day-neutral (everbearing) cultivars can be lightly cropped and harvested during the year of planting in some areas. Commercial plantings are normally replaced at least every 3 or 4 years. Strawberries are very labor-intensive, and establishment and operating costs can be high.

Commercial success depends first of all on selecting and preparing an excellent site. Strawberries require well-drained soil at least 8 inches deep, preferably more. Raised beds are used for sites with shallow soil. An optimum site has a slope of about 2 to 4 percent to provide for water and cold air drainage. High organic matter concentrations are highly desirable. Optimum soil pH is between 5.0 and 7.0 (pH 7.0 is neutral). Strawberries are less sensitive to soil pH and salts than are raspberries or blueberries, and production is possible on slightly alkaline soils. Strawberries cannot tolerate drought and require irrigation.

Matching suitable strawberry cultivars to your site is also critical. There are hundreds of strawberry cultivars available, many of which are suitable for commercial production in Idaho. Strawberry cultivars vary widely in their cold hardiness, from 25°F to -50°F. The most popular commercial cultivars for northern climates are June-bearing types, which produce a single crop of berries during the spring or early summer beginning 1 year after planting.

Day-neutral cultivars are also available, which flower and bear fruit throughout the growing season and bear a light crop the year of planting. Double-cropping or traditional everbearing cultivars begin bearing 1 year after planting, but most are more suitable for home gardens than for commercial production. Peak yields

for all cultivars in cold climate, short growing season areas are normally obtained during the year after planting and decrease during subsequent seasons due to buildups of pests and diseases.

Since strawberries are delicate and perishable, for fresh use they must be picked at least every other day during the harvest, be handled as little as possible, and be cooled immediately after picking. Under ideal conditions, strawberries have a shelf life of 8 to 10 days. Strawberries can be picked by machine, but are then only suitable for processing. Rainy weather during harvest increases the incidence of fruit rots, decreasing yields.

Management

Strawberry 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. Cultural practices vary tremendously, according to growing region, production system, and cultivar.

Prospective growers must understand financing, cash flow, business management, and marketing; attention to detail and meticulous record keeping are essential. Prospective growers should also find out if 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 commercial strawberry enterprise is expensive, and you should not expect a positive cash flow until the second growing season. Before purchasing land, equipment, or plants, you should develop a budget to ensure you have

adequate capital not only to establish and maintain a berry operation, but also to survive a poor crop or marketing year. Advance budgeting is also necessary before expanding an existing operation.

Strawberries can tolerate a wide range of soil conditions, require no trellises, and can be irrigated effectively with simple overhead or furrow systems. Thus, site preparation and equipment costs are generally lower than for raspberries. However, labor needs are generally higher, making the overall cost of establishment about the same as for raspberries. Refrigerated storage facilities will be needed for all but strictly U-pick or local direct-market operations, and deer fences are necessary in many parts of Idaho. For harvesting you will need about 8 experienced pickers per acre per day. See Table 1 for typical costs in the establishment and bearing years.

Strawberry prices are generally lower than those for other small fruits. From 1979 to 1990, growers in the Pacific Northwest received average wholesale prices of \$0.34 per pound for processing berries and about \$0.54 per pound for fresh berries. Wholesale price fluctuations of \$0.10 to \$0.15 per pound occurred between consecutive years during the same period. At the present time, wholesale profits are marginal for fresh berries, and processing berries have actually sold for less than the cost of production. Profits for small-scale growers selling to direct local markets will depend upon individual production costs and selling prices.

Table 1. Typical strawberry 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 (\$)	
Establishment year (one-time costs)	
Land preparation	500
Plants and planting	660
Cultural practices²	620
Fixed costs³	625
Total	2,405
Production years (1 to 3)⁴	
Cultural practices	850
Harvest materials and labor	2,820
Fixed costs	1,360
Total	5,030

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.

⁴Annual production costs include establishment costs, amortized over 3 years.

Strawberry yields in Idaho typically range from 3,000 to 10,000 pounds per acre, depending upon cultivar, planting system, climate, and age of the planting. To put this in a national perspective, average yields in California are 47,500 pounds, and the highest-yield growers may obtain 100,000 pounds per acre each year.

Marketing

You need to determine your market before planting, since the type of market largely controls the selection of cultivars, storage facilities, and transportation. Whatever market you select, remember that strawberries are extremely perishable, and fresh berries must reach consumers within 2 days of harvest.

National production

In the United States, California produces approximately 75 percent of the fresh and processing berries intended for export to wholesale markets. Florida also produces a large amount of strawberries for fresh export markets. The long growing season in those areas makes it possible to produce fruit 6 to 8 months out of the year. During the winter off-season, fruit from Mexico and Chile fills the fresh market niche. The Pacific Northwest follows California in producing processing berries for local and export wholesale markets. Processing berries account for 90 percent and 75 percent of the Oregon and Washington crops, respectively. Many regions in the United States produce strawberries for local fresh and processing markets.

Direct marketing — Selling berries directly to consumers through roadside stands, farmers' 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. Most successful U-pick operations require a population of about 2,500 people within a 20-mile radius for each acre of strawberries. In some areas, tourists represent an additional market for prepicked berries. Whatever your market is, don't grow more berries than you can sell.

Wholesale marketing — Selling berries in fresh or processing wholesale 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. In the United States, wholesale export markets for strawberries are dominated by California, Florida, Oregon, and Washington. Strawberry producers in Idaho are unlikely to have much success in

exporting wholesale berries. Locally owned grocery stores and restaurants are potential wholesale outlets.

Value-added products — Strawberries lend themselves to purees, jams, concentrates, pastries, yogurt, 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 late spring frosts can destroy crops. Excessive rain increases diseases and can interfere with pollination, fruit set, and harvest. Strawberries are susceptible to many insects, pests, and diseases; weeds can easily overrun strawberry fields, choking off production.

Labor, marketing, and transportation represent risks as well. Once strawberries ripen, they must be harvested immediately. A labor strike or shortage can cause serious crop losses. A trucking strike or delayed delivery can leave your berries rotting on a loading dock. Because strawberries 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 regions can substantially reduce 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 system, and diligence in carrying out cultural practices will reduce crop losses; advance planning and marketing reduce risks associated with harvesting, transporting, and selling.

You still want to grow strawberries?

Okay, you still have visions of strawberries in your head. So what do you do now? One major reason strawberry 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 strawberries, start with no more than 1/2 to 1 acre of berries. Growing a few rows of strawberry plants in the backyard will not prepare you for the intense management needed for even a small commercial operation. If, after gaining some commercial experience, you still consider commercial strawberry 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 strawberries is not for

you. It's better to find that out with a small investment rather than with a large one.

Special note

As of February 1992, importation of strawberry plants into Idaho is regulated by a quarantine administered by the Idaho Department of Agriculture. Under the quarantine, strawberry plants must be inspected and certified by an authorized agency, and a phytosanitary certificate must be issued before the plants can enter Idaho. There are no restrictions on buying, selling, or transporting strawberry plants within the state.

For more information on strawberry quarantine regulations in Idaho, contact the Idaho Department of Agriculture, 2270 Old Penitentiary Road, Boise, Idaho 83712. For information about regulations governing shipments of strawberry plants or fruit to other states, contact the departments of agriculture in those states.

For further reading

For more detailed budgeting information, refer to *Enterprise Budget: Strawberry Establishment, Willamette Valley Region* and *Enterprise Budget: Strawberries, Willamette Valley Region*, available from Oregon State University, Washington County Extension Office, Publications, Courthouse, Hillsboro, Oregon 97124. The publications are 50 cents each plus postage and handling.

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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