



Local Market Opportunities for Treasure Valley Farmers: Findings from an Institutional Buyers' Survey and Enterprise Budgets

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LOCAL MARKET OPPORTUNITIES FOR TREASURE VALLEY FARMERS: FINDINGS FROM AN INSTITUTIONAL BUYERS' SURVEY AND ENTERPRISE BUDGETS

Executive Summary

This report identifies opportunities and obstacles for small- and medium-sized agricultural producers to sell products to institutional buyers in southern Idaho's Treasure Valley. We describe findings from a survey of institutional food buyers in the Treasure Valley and enterprise budgets for selected crops identified by the survey as most promising.

Thirteen Treasure Valley institutional food buyers were interviewed from late January to early March 2012. Our sample included three types of buyers: school districts; food service contractors; and other autonomous food buyers (defined as institutions whose employees manage food purchasing for the institution, e.g. restaurants). Interview questions focused on current purchases of local food products, advantages and disadvantages of buying from local producers, and interest in future purchases of local products.

Because respondents were selected based on our prior knowledge of their interest in local foods, the sample does not represent all institutional buyers in the Treasure Valley. Nevertheless, our findings suggest significant institutional market opportunities exist for producers interested in selling locally.

- ◆ There is a great deal of interest in all 12 of the local food products we covered in our interviews, especially tomatoes, beef, and apples. Sizable purchases of some products are already occurring.
- ◆ Barriers to purchases of local food products are related to availability and seasonality.
- ◆ Institutions are willing to buy more local food if growing seasons are extended.
- ◆ Food producers need to meet food safety and liability certification requirements.
- ◆ Significant capacity already exists to prepare raw products.
- ◆ Enterprise budgets show that three crops—lettuce, peppers, and tomatoes—are most likely to be profitable, given current production practices and prices.
- ◆ Two other crops—strawberries and apples—could be more profitable with improved production practices, new processing opportunities, or higher prices.
- ◆ The enterprise budgets showed that several of the crops may be worth investigating further for small-scale producers.

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BACKGROUND

Consumers who buy their food from local producers represent a small share of total consumption. The 2007 Agricultural Census—which is the most current national data—estimated direct farmer to consumer sales in Idaho to be \$7.8 million or 0.13% of total sales.¹ Nevertheless, the high volume of market goers at Boise's Capital City Public Market and the proliferation of CSA's and community gardens clearly signal a change in consumer preferences in urban Idaho, at least on the margin. Based on a July 2011 market assessment of seven farmers markets in Ada and Canyon Counties, we estimated that on the day of the assessment, roughly 19,000 people visited a farmers market and spent roughly \$154,000 on locally produced food.²

Consumers and policy makers are interested in local foods for a variety of reasons. These include beliefs that an expanded local foods system can boost local and regional economic development; provide healthier, more nutritious food; improve access to safe, healthy foods for all consumers; and decrease energy consumption and greenhouse gases.³

We conducted our study in two parts:

- ◆ First, we surveyed institutional buyers about which agricultural products offer the most promise and warrant a more careful look in terms of economic feasibility. The survey also helped us identify barriers that institutional buyers face when trying to purchase local food, and the ways to reduce or eliminate those barriers.
- ◆ Second, we developed enterprise budgets for five products identified by institutional buyers as being of significant interest. The budgets provide a preliminary assessment of the economic feasibility of producing and selling these products directly to institutional buyers.

¹ 2007 Census of Agriculture. NASS, USDA, 2009. <http://www.agcensus.usda.gov/Publications/2007/index.php>

² For more information on the market assessment, contact the authors.

³ Martinez, et al. Local Food Systems: Concepts, Impacts and Issues. Economic Research Service, USDA, May 2010. www.ers.usda.gov/Publications/ERR97/ERR97.pdf

METHODOLOGY

Institutional Buyer Interviews

Our institutional buyers' survey was designed to provide information about potential demand for local products on the part of institutional buyers in the Treasure Valley. We identified 15 potential respondents using key informants, including farmers, UI Extension and other university faculty, and employees from the Idaho State Department of Agriculture. Most of the buyers identified by key informants were known to purchase local food and the rest had unknown purchasing habits. The 15 buyers were contacted by phone or email about their willingness to participate in a face-to-face interview about their institution's purchases of local food.

Two of the 15 respondents identified by key informants declined to participate in the study, so the final sample included 13 buyers. The interviews, conducted from January through March, 2012, took an average of 30 minutes each. Notes from each interview were taken by hand, and later put into electronic form. The information from each response was then hand-coded by topic for analysis.

Local food was defined as a crop or livestock product produced within the 14-county Treasure Valley foodshed, as shown in Figure 1. The questionnaire was developed with guidance from University of Idaho Extension and other faculty, and was approved by the University's Institutional Review Board.

The three types of institutional buyers in our sample included the following:

- ◆ school districts;
- ◆ food service contractors (companies that manage the food service of institutions such as colleges, universities, and hospitals); and
- ◆ other autonomous food buyers (institutions whose employees manage the purchasing and serving of food for the institution such as restaurants, youth organizations, and assisted living centers).

Enterprise Budgets

Based on the survey data, we identified crop and livestock products of significant interest to the institutional buyers in our sample. From this list, we selected five for further analysis using enterprise budgets:

- ◆ apples,
- ◆ strawberries,
- ◆ peppers,
- ◆ tomatoes, and
- ◆ leaf lettuce.⁴

The budgets were based on small-scale producers in southwestern Idaho, and were reviewed by an average of three local producers. The budgets were then reviewed by Kate Painter, Agricultural Economics Analyst, Department of Agricultural Economics and Rural Sociology at the University of Idaho.⁵

⁴ Buyers in the sample expressed significant interest in other products for which University of Idaho enterprise budgets already exist. They include beef, dairy, potatoes, spring and winter wheat, and dry beans. These budgets are available at <http://projweb.cals.uidaho.edu/idahoagbiz/enterprise-budgets/>.

⁵ For more detailed information concerning budget assumptions and the budgets themselves, see the Appendix.

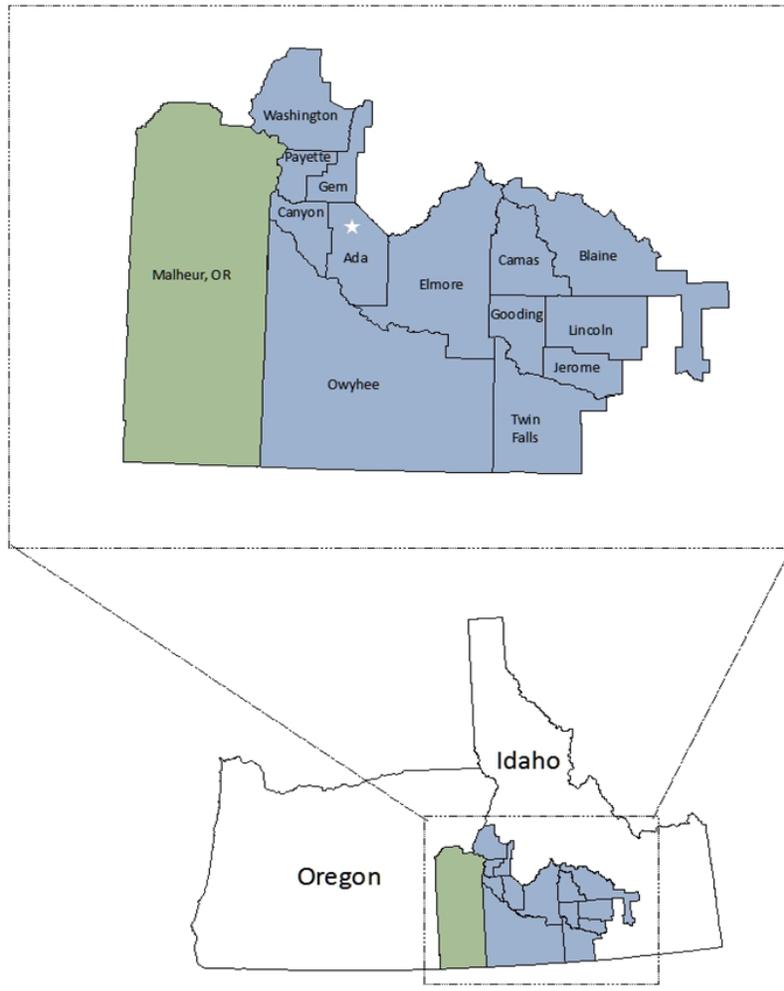


Figure 1. Treasure Valley Food Shed

FINDINGS

Current and Potential Demand for Local Food

We asked respondents whether they purchase items on a list of 12 crop and livestock products currently or historically produced in the Treasure Valley. We also asked whether they would like to purchase the products locally if they did not currently do so, and if they would like to increase purchases of items they already buy. In addition, for each item, we asked respondents about the type and level of processing they prefer.

Table 1. Does your organization currently purchase the following products locally, and if so, in what form? (n = 13) ¹					
Product	Form				
	Fresh	Canned	Frozen	Processed	Other, Specify
Potatoes	13	1	2	2	Dehydrated (1)
Apples	11	1		3	
Beef	4		5	2	
Grapes	8		1	2	
Tomatoes	10	1			
Peppers	9			1	
Milk				10	
Strawberries	8		1		
Leafy greens	6		1	1	
Carrots	5		1	1	
Dry beans		1		4	
Flour (wheat)				4	

¹ Respondents could select multiple forms for each product.

Table 1 lists each of the 12 crop and livestock products in order of demand, defined as the number of requests for and uses of that item.

The three types of buyers differ in their purchasing habits, demand for specific products, and the challenges they face when purchasing local food.

- ◆ Local foods most commonly purchased by schools are potatoes, apples, and grapes. Those which schools would like to purchase or would purchase more of include apples, carrots, and strawberries.
- ◆ Local foods most commonly purchased by foodservice contractors are apples, peppers, and tomatoes. Those which foodservice contractors would like to purchase or would purchase more of are beef, tomatoes, and flour.
- ◆ Local foods most commonly purchased by other autonomous food buyers are beef, potatoes, and tomatoes. Those which other autonomous food buyers would like to purchase or would purchase more of are beef, tomatoes, and flour.

More detail about current purchases and potential future purchases is presented in the Appendices.

In the fall of 2012 we contacted the same institutional buyers who participated in the initial interviews. Again using the list of 12 crop and livestock products, we asked them to quantify the amount of local food they currently purchase, or would be interested in purchasing if limited supply, price, and seasonality were not problems. Five buyers responded, although one indicated that they had tried to purchase more local food in the time following our initial interview, and were unsuccessful. For many products, the

Table 2. If limited supply, price, and seasonality were not problems, how much of the following products would you like to purchase from local growers (or through an intermediary)? (n=5)					
Product	Quantity per Month*				
	Mean	Total	High	Low	Number Not Interested
Apples	7,486	29,943	28,000	23	-
Potatoes	5,850	23,400	11,300	800	-
Carrots	2,406	4,812	3,500	200	-
Beef	800	1,600	800	800	2
Milk	518	1,553	1,125	28	-
Strawberries	507	2,028	1,680	48	-
Tomatoes	493	1,400	1,500	20	-
Leafy greens	467	1,400	600	400	1
Flour (wheat)	355	1420	600	20	-
Peppers	246	984	400	24	-
Dry beans	160	320	160	160	1

*Quantity listed is pounds, with the exception of milk, which is reported in gallons.

average quantity purchased was small; although there were several instances where one institution would purchase very large quantities (see Table 2). This suggests that the demand exists for increased production of certain local products.

Table 3. Other products purchased locally by institutions.					
Fruit/Berries	Vegetables	Meat	Grains	Other	Dairy
Blueberries	Cantaloupe	Bison	Bread	Honey	Cheese
Cherries	Cucumber	Chicken	Corn Chips	Honeycomb	Dairy Products (other than milk)
Nectarines	Green Beans	Fish	Tortilla Chips		Eggs
Peaches	Melons	Lamb	Tortillas		Sour Cream
Pears	Onions	Pork			
Pluots	Snap Peas	Turkey			
	Summer Squash				
	Vegetables				
	Watermelon				
	Winter Squash				

Purchasing Local Food Directly from Farmers

All respondents in our sample currently purchase locally produced food. All of them also indicated that if farmers were able to extend their growing season, they would purchase more local produce.

About 60 percent of institutional food buyers in the sample purchase local food directly from farmers, and most of those purchase from less than five individuals. Other autonomous food buyers were most likely to buy directly from farmers, followed by schools. Foodservice contractors were least likely to buy directly from farmers.

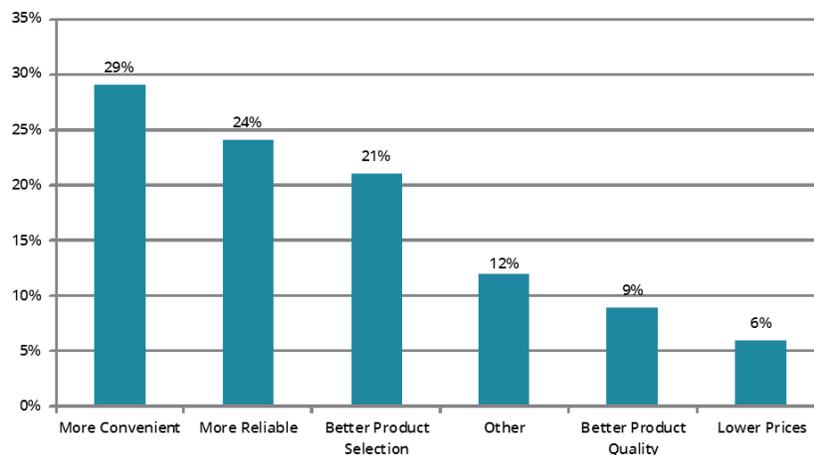
Buyers from all three groups cited advantages and disadvantages of buying directly from farmers. The most commonly cited advantage was better product quality. Other advantages listed included the following:

- ◆ relationship building, leading to better conflict resolution;
- ◆ farmers' ability to produce for the institution's specific needs (e.g. different sizes of apples are preferred by children and adults);
- ◆ it's the "right thing to do"; and
- ◆ trust, food buyers value knowing who grows their food and how.

The three groups of buyers cited similar disadvantages of purchasing local food directly from farmers. The top two disadvantages cited were higher prices and smaller product selection. Reliability of farmers and poor product quality were not cited as disadvantages, but other disadvantages listed included the following:

- ◆ seasonality of products;
- ◆ non-uniform product sizes;
- ◆ increased amount of paperwork, more invoices because of increased number of vendors;
- ◆ "farmers are not always business people;" and
- ◆ "farmers cannot produce what we need," often meaning quantity, and sometimes a specific product.

Figure 2. Advantages of purchasing local food through distributors



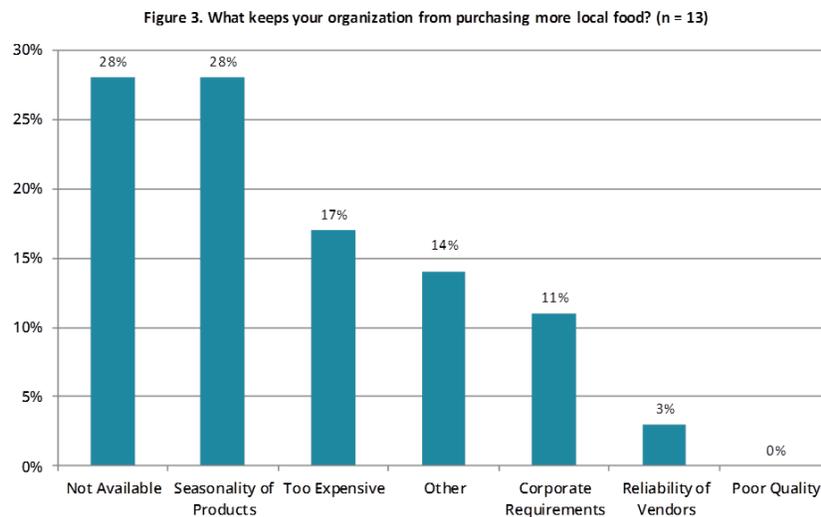
Purchasing Local Food through Distributors

All respondents currently purchase local food through foodservice distributors. About three-fourths of respondents indicated they would purchase local food through any distributor who carried the products they need, as long as prices were affordable. Of the three buyer groups, foodservice contractors showed the least amount of flexibility regarding the use of different distributors for different products. When asked to discuss the advantages of purchasing local food through foodservice distributors, the three groups of respondents gave similar answers (see Figure 2). Examples of other advantages cited but not listed in Figure 2 included the following.

- ◆ Current distributors can handle large quantities as needed.
- ◆ Distributors are more efficient overall.
- ◆ Distributors provide a more stable supply of products than farmers.

The disadvantages of purchasing local food through distributors were similar among all respondents. The majority (58%) listed high prices as a disadvantage of purchasing local food through distributors. Additional disadvantages identified included the following:

- ◆ loss of personal connection with producers;
- ◆ delivery timing not always convenient; and
- ◆ freshness of products.



Increasing Local Food Purchases

All institutional buyers in our sample are interested in buying more local food, but many face challenges that may be deterrents. Consistent availability and seasonality are the two most common challenges (see Figure 3). Examples of other barriers identified but not listed in Figure 3 included the following:

- ◆ quantity issues, leading to multiple vendors for one product if purchasing from farmers;
- ◆ inadequate information about the availability of local products;
- ◆ consistent quantities of products throughout the year from a single supplier are not available; and
- ◆ post-harvest handling needs to be improved.

⁶ HACCP is a management system in which food safety is addressed through the analysis and control of biological, chemical, and physical hazards from raw material production, procurement and handling, to manufacturing, distribution and consumption of the finished product (FDA) <http://www.fda.gov/food/foodsafety/hazardanalysiscriticalcontrolpointshaccp/default.htm>

Responses to this question differed by purchaser group. School districts and other autonomous food buyers cited seasonality of products and lack of availability as the top barriers. Foodservice contractors cited several additional reasons, which included the following:

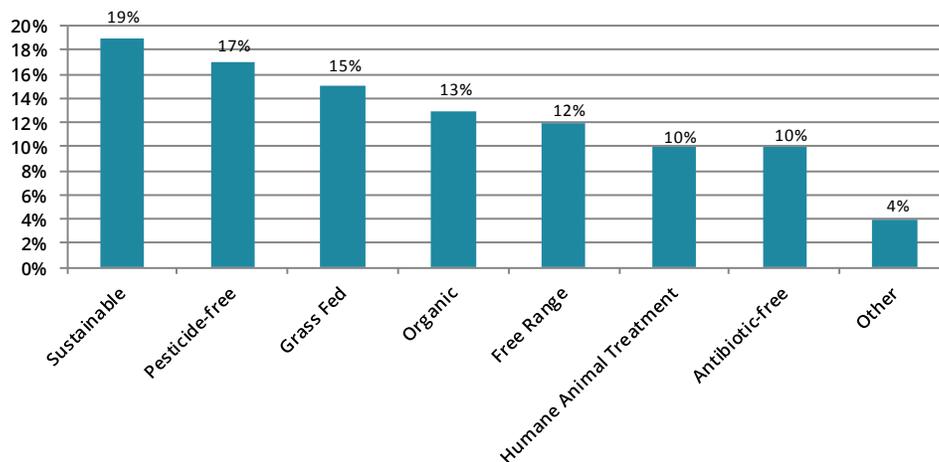
- ◆ quantity issues;
- ◆ post-harvest handling needs to be improved; and
- ◆ food safety considerations.

Food Characteristics, Insurance, and Food Safety

In today's food market, producers attempt to differentiate their products or production practices in many ways. One approach is to label products according to production method. This has led to food labels claiming various food characteristics such as sustainable, natural, humane animal treatment, and pesticide-free.

With this in mind, we asked the food buyers whether certain food characteristics influenced their purchasing decisions. The three groups of buyers tended to answer differently. For example, school districts were somewhat more likely than others to be interested in pesticide-free food, while foodservice contractors and other autonomous food buyers were most interested in sustainable food (see Figure 4).

Figure 4. Are the following food characteristics important to your organization?



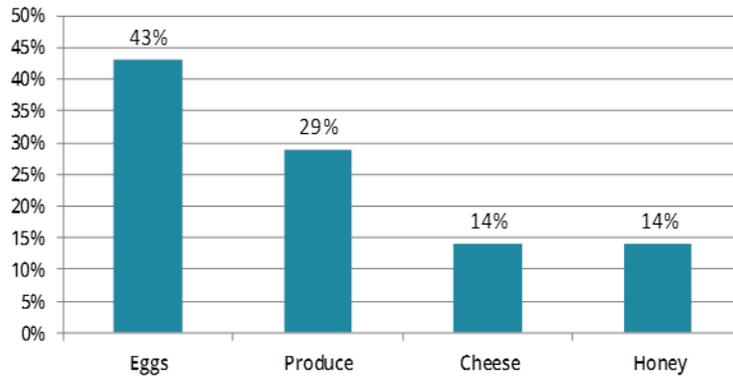
Nine of the buyers in our sample require their vendors to carry a food safety certification, usually in the form of a Hazard Analysis and Critical Control Points (HACCP) system⁶, USDA certification, or following food safety and recall guidelines. All of the buyers in our sample requested that farmers be encouraged to contact potential customers before they have a product to sell to make sure they meet the customer's requirements for food safety.

⁷ The budgets can be found in the Appendix of this report.

We asked respondents if they had food safety concerns about any specific local products. Figure 5 shows which products caused the most concern. Most concerns were expressed by respondents who serve vulnerable populations.

Some buyers are also concerned about liability insurance requirements. Half of the respondents currently require liability insurance. Those that do not require the insurance said that many of their vendors carry the insurance anyway. Some respondents commented that they will be requiring liability insurance in the future. Buyers who require insurance typically ask for \$1 million in liability with a \$4 million umbrella policy.

Figure 5. Does your organization have specific concerns about purchasing local products?



Enterprise Budgets

We drafted enterprise budgets for the following five food products: apples, leaf lettuce, peppers, strawberries, and tomatoes. These were all products that institutional buyers showed interest in purchasing locally. Three of the products, leaf lettuce, peppers, and tomatoes showed net profits as drafted; apples and strawberries showed net losses.⁷

Because production practices vary greatly for each farm, these budgets are meant to serve as a starting place for determining the possible profitability of a particular farm enterprise. All of the products warrant more investigation, although leaf lettuce and peppers stand out as the most promising.

⁷The budgets can be found in the Appendix of this report.

DISCUSSION

Opportunities exist in the Treasure Valley for agricultural producers to sell their products to institutional buyers. Although our sample was not large enough to yield detailed estimates of institutional demand for local products, results suggest that opportunities exist for small-scale producers to make a profit by selling locally. Public and private non-profit organizations such as University of Idaho Extension, Idaho State Department of Agriculture, and the U.S. Department of Agriculture Rural Development can play a pivotal role in growing these markets through programming, research, outreach, and financing.

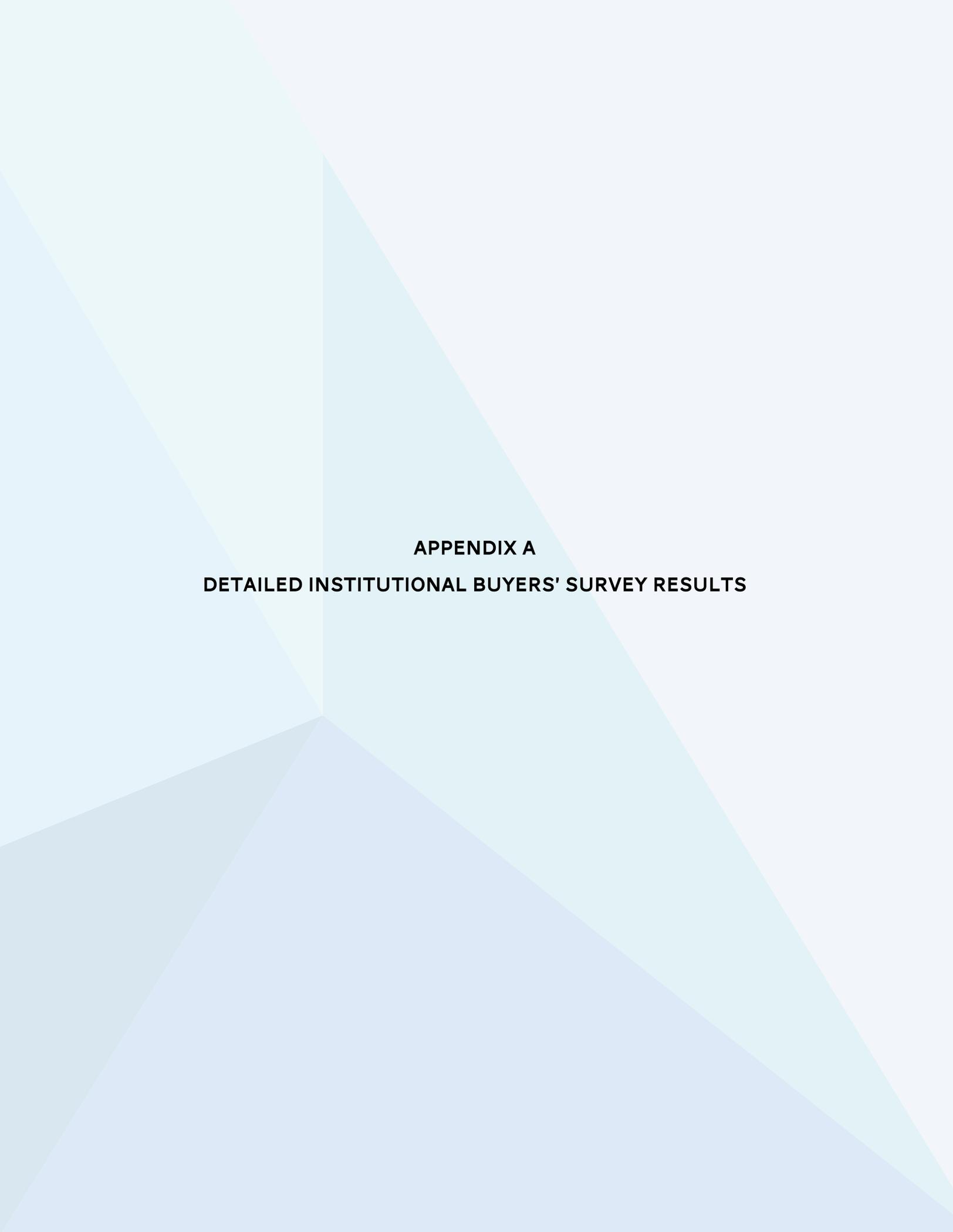
Innovative strategies for expanding local markets are currently underway in the Treasure Valley, and include Idaho's Bounty, the University of Idaho's Food Technology Center in Caldwell, and the Cultivate Idaho project in Emmett.

- ◆ Idaho's Bounty is a distribution system for local food in southern Idaho. Their success highlights the potential for marketing and distribution efforts. Idaho's Bounty currently focuses its efforts on organically produced foods. While some institutional buyers are interested in organic products, a larger market exists for local in general.
- ◆ The University of Idaho's Food Technology Center is a multi-purpose food production facility. It includes a commercial kitchen available to individuals and companies, and a pilot plant available to help established companies with research and development, food processing studies, and food quality and safety analysis.⁸
- ◆ As part of the Cultivate Idaho project in Emmett, community members are creating a community food hub to provide distribution and processing opportunities for small farmers in Gem County. They started a feasibility study in the summer of 2012, and they are currently identifying a business structure.

Although the institutional buyers often described the quality of local products as excellent, many survey respondents expressed frustration when discussing their business relationships with local producers. Programs that strengthen farmers' business skills could improve relationships with institutional buyers, while helping producers better understand their potential markets. Programs that focus on post-harvest handling and packaging could also help producers understand the expectations of institutional food buyers as well as other non-farmers market customers.

Season extension is a priority strategy for increasing the supply of local food. High tunnel experimentation as well as crop variety trials specific to southwestern Idaho could increase the profitability of small- to medium-size farms and the supply of food produced for Treasure Valley markets. Whether high tunnels or another technology, extending growing seasons for a larger portion of the year will address an obstacle to selling to a portion of institutional buyers.

⁸ "Food Technology Center Introduction." *University of Idaho Extension*. <http://cals.uidaho.edu/ftc/introduction.htm>



APPENDIX A
DETAILED INSTITUTIONAL BUYERS' SURVEY RESULTS

Table A. Do schools currently purchase the following products locally, if so, in what form?

Product	Form				
	Fresh	Canned	Frozen	Processed	Other, Specify
Potatoes	4	1	1	2	1, Dehydrated
Apples	4			2	
Grapes	4			1	
Milk				3	
Tomatoes	2				
Strawberries	1				
Peppers	1				
Flour (Wheat)					
Leafy Greens					
Beef					

Table B. Would schools like to purchase the following products locally, if so, in what form?

Product	Form				
	Fresh	Canned	Frozen	Processed	Other, Specify
Apples	1	1	1	1	
Carrots	2			2	
Strawberries	3				
Peppers	1			1	
Beef			1	1	Heat & Serve
Milk				1	
Potatoes				1	
Flour (Wheat)				1	
Grapes					
Dry Beans					
Tomatoes					
Leafy Greens					

Table C. Do food service contractors currently purchase the following products locally, if so, in what form?

Product	Form				
	Fresh	Canned	Frozen	Processed	Other, Specify
Apples	3			1	
Peppers	3			1	
Tomatoes	3				
Potatoes	3				
Strawberries	3				
Leafy Greens	3				
Grapes	2		1		
Milk				3	
Beef	1		1	1	
Carrots	2				
Dry Beans				2	
Flour (Wheat)				1	

Table D. Would food service contractors like to purchase the following products locally, if so, in what form?

Product	Form				
	Fresh	Canned	Frozen	Processed	Other, Specify
Beef	1			1	
Tomatoes		1		1	
Flour (Wheat)				1	
Strawberries			1		
Potatoes				1	
Grapes	1				
Carrots	1				
Apples			1		
Dry Beans					
Milk					
Leafy Greens					
Peppers					



APPENDIX B
ENTERPRISE BUDGETS

By Erinn Cruz, Research Analyst | (208) 364-4563 | erinnc@uidaho.edu

Background & Assumptions

The cost and return estimate shown here is typical for growing apples on a small scale in southwestern Idaho. Because each orchard has a unique set of resources, production challenges, and level of productivity, costs will vary from orchard to orchard.¹ Users of this budget are encouraged to think about their individual operation, especially when calculating costs to be included in overhead.

The Farm

This budget is based on a farm with a total of twenty acres in production, with five acres planted in apples. This is a mature orchard with 626 trees planted per acre.

Production Practices

Leaf sampling is done every three years; therefore, the cost shown in the budget has been multiplied by 0.33. The trees are pruned twice, once when they are dormant and once in the summer. Tree rows are mowed four times, including a late fall clean-up. One hive of bees is rented in the spring, and fruit is thinned by hand. The orchard is watered with micro-sprinklers, and the cost of the irrigation system is covered in the annual land rent.

Water use is highly dependent on location and the cover crop planted.

Codling moth is controlled through both pesticides and mating disruption. Chemical controls are also used for other insect and plant pests as well as diseases. Pesticide names are for reference purposes only. It does not imply endorsement of particular products or companies. The orchard is picked twice during harvest.

Machinery, Land, and Labor

Labor to operate machinery is valued at \$16.25 per hour and general farm labor is valued at \$9.55 per hour. Labor rates include a base wage plus a percentage for Social Security, Medicare, unemployment insurance, and other labor overhead expenses. It is assumed that the orchard is being rented for \$750 per acre per year. The interest rate for annual operating expenses is assumed to be 6.75%.

¹ Input prices, labor values, and interest rates were taken from the University of Idaho's Idaho Crop Input Price Summary for 2011 where applicable.

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Sample Fresh-Market Apple Budget South Western Idaho Production

Per-Acre costs for production based on 626 trees per acre.

Items	Quantity per Acre	Unit	Price/Cost per Unit	Total Value/Cost per Acre
Gross Returns				
Apples - Packed	15,477	lb	\$ 0.50	\$ 7,738.50
Apples - Processed	7,623	lb	\$ 0.24	\$ 1,829.52
Total Gross Returns for Apples				\$ 9,568.02
Variable Costs				
Herbicides				
Roundup - Tree Rows	2	application	\$ 4.00	\$ 8.00
Roundup + Princep - Winter Strip	1	application	\$ 21.00	\$ 21.00
Insecticides				
Delayed Dormant (Aphids, Mites, Scale)	1	application	\$ 8.00	\$ 8.00
Assail (Aphid, @ Pinkbud to Petal Fall)	1	application	\$ 59.00	\$ 59.00
Intrepid, Oil (Codling Moth)	1	application	\$ 45.00	\$ 45.00
Assail, Oil (Codling Moth)	1	application	\$ 128.00	\$ 128.00
Rimon, Oil (Codling Moth)	1	application	\$ 64.00	\$ 64.00
Cyd X (Codling Moth)	1	application	\$ 69.00	\$ 69.00
Disease Control				
Dithane (Mildew, Scab @ Greentip)	1	application	\$ 12.00	\$ 12.00
Rally (Mildew, Scab @ Pinkbud)	1	application	\$ 6.00	\$ 6.00
Dithane (Scab @ Pinkbud)	1	application	\$ 12.00	\$ 12.00
Flint & Mycoshield (Scab, Blight)	1	application	\$ 51.00	\$ 51.00
Mating Disruption (Codling Moth)	122	lures	\$ 1.00	\$ 122.00
Fertilizer (includes cart rental)	1	application	\$ 52.38	\$ 52.38
Leaf Sampling	1	each	\$ 10.00	\$ 10.00
Bee Rental	1	hive	\$ 90.00	\$ 90.00
Labor				
Pruning - Dormant	45	hours	\$ 9.55	\$ 429.75
Pruning - Summer	45	hours	\$ 9.55	\$ 429.75
Remove & Burn Prunings	8	hours	\$ 9.55	\$ 76.40
Spread Fertilizer	2	hours	\$ 16.25	\$ 32.50
Irrigation	6.93	hours	\$ 11.55	\$ 80.04
Mow Tree Rows	6	hours	\$ 16.25	\$ 97.50
Thin Fruit	113	hours	\$ 9.55	\$ 1,079.15
1st Pick	50	hours	\$ 9.55	\$ 477.50
2nd Pick	40	hours	\$ 9.55	\$ 382.00
Apply Pesticides	24	hours	\$ 16.25	\$ 390.00
Cleaning, Sorting, Packing	620	boxes	\$ 8.00	\$ 4,960.00
Interest on Operating Capital	1	acre	6.75%	\$ 620.46
Total Variable Costs				\$ 9,812.43
Fixed Costs				
Crop Insurance	1	acre	\$ 550.00 ²	\$ 550.00
Land Rent (includes irrigation system)	1	acre	\$ 750.00	\$ 750.00
Irrigation (water charge)	1	acre	\$ 264.85	\$ 264.85
Shop/Field Tools	1	acre	\$ 244.00 ¹	\$ 244.00
Bins	1	acre	\$ 62.00 ¹	\$ 62.00
Machinery Depreciation	1	acre	\$ 300.00	\$ 300.00
Total Fixed Costs				\$ 1,620.85
Total Costs per Acre				\$ 11,433.28
Net Enterprise Income				\$ (1,865.26)

¹ These ownership costs represent the amortized value of this equipment with a long useful life.

² 65% coverage with 35% deductible

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Sample Fresh-Market Apple Budget

South Western Idaho Production

Sensitivity Analysis						
Net returns for five different yields and prices						
Prices	Yields					
	17,000	20,000	23,000	26,000	29,000	
\$ 0.25	\$(7,183.28)	\$(6,433.28)	\$(5,683.28)	\$(4,933.28)	\$(4,183.28)	
\$ 0.50	\$(2,933.28)	\$(1,433.28)	\$ 66.72	\$ 1,566.72	\$ 3,066.72	
\$ 0.75	\$ 1,316.72	\$ 3,566.72	\$ 5,816.72	\$ 8,066.72	\$ 10,316.72	
\$ 1.00	\$ 5,566.72	\$ 8,566.72	\$ 11,566.72	\$ 14,566.72	\$ 17,566.72	
\$ 1.25	\$ 9,816.72	\$ 13,566.72	\$ 17,316.72	\$ 21,066.72	\$ 24,816.72	

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Background & Assumptions

The cost and return estimate shown here is typical for growing leaf lettuce on a small scale in southwestern Idaho. Because each farm has a unique set of resources, production challenges, and level of productivity, costs will vary from farm to farm.¹ Users of this budget are encouraged to think about their individual operation, especially when calculating costs to be included in overhead.

The Farm

This budget is based on a farm with a total of five acres in production, with one acre planted in leaf lettuce. The farm uses a drip irrigation system that must be replaced every three years. Because the farm is small and diverse, very little machine labor is used.

Production Practices

Although the farm is not certified organic, it follows general organic production practices. In the spring the land is disked. Then compost is spread and the drip irrigation tape is installed. The leaf lettuce is planted in beds measuring 48" x 60", and planting is staggered over several weeks. Weeds are controlled with hand hoeing as needed.

The yield listed is the estimate of the national average for leaf lettuce in 2011, as published by USDA. It is also assumed that 75% of the leaf lettuce is sold in bulk, with the other 25% being sold in 5 ounce cartons to grocery stores. Pesticide costs have been multiplied by 0.25 because, on average, the field must be treated for pests one in four years.

Machinery, Land, and Labor

Custom hiring is used for land preparation and chemical applications. It is assumed that the farm owns a drum washer and water extractor, and their annual ownership costs are accounted for in the overhead category.

Labor to operate machinery is valued at \$16.25 per hour and general farm labor is valued at \$9.55 per hour. Labor rates include a base wage plus a percentage for Social Security, Medicare, unemployment insurance, and other labor overhead expenses. The land charge of \$150.00 is based on the 2011 NASS cash rent for irrigated cropland in southwestern Idaho. The interest rate for annual operating expenses is assumed to be 6.75%.

¹ Input prices, labor values, and interest rates were taken from the University of Idaho's Idaho Crop Input Price Summary for 2011 where applicable.

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Sample Leaf Lettuce Budget South Western Idaho Production

Items	Quantity per Acre	Unit	Price per Unit	Total Value/Cost per Acre
Gross Returns				
Leaf Lettuce - Sold in retail cartons	5,040	lb	\$ 4.00	\$ 20,160.00
Leaf Lettuce - Sold in bulk	20,160	lb	\$ 1.00	\$ 20,160.00
Total Gross Returns for Leaf Lettuce				\$ 40,320.00
Variable Costs				
Seeds	4.0	lbs	\$ 166.30	\$ 665.20
Soil Amendments				
Compost	2	cubic yards	\$ 42.99	\$ 85.98
Approved Organic Chemicals	1	acre	\$ 37.50	\$ 37.50
Land Preparation				
Drip Irrigation Tape (Tape & Labor)	1	acre	\$ 1,169.85	\$ 1,169.85
Labor				
Custom Applications				
Primary Tillage	1	time	\$ 29.63	\$ 29.63
Bed Markout & Spread Compost	1	time	\$ 40.00	\$ 40.00
Spray Chemicals	4	times	\$ 2.21	\$ 8.83
Pest Scouting	8	hours	\$ 11.55	\$ 92.40
Planting	12	hours	\$ 16.25	\$ 195.00
Hand Hoeing	100	hours	\$ 9.55	\$ 955.00
Hand Harvest	1000	hours	\$ 9.55	\$ 9,550.00
Cleaning/Packing	777	hours	\$ 9.55	\$ 7,420.35
Misc.				
Clamshells (5 oz)	17,000	clamshells	\$ 0.20	\$ 3,400.00
Fuel	26	gallons	\$ 3.63	\$ 94.38
Interest on Operating Capital			6.75%	\$ 801.36
Total Variable Costs				\$ 24,545.48
Fixed Costs				
Overhead	1	acre	\$ 40.00	\$ 40.00
Irrigation	1	acre	\$ 125.85	\$ 125.85
Land	1	acre	\$ 150.00	\$ 150.00
Total Fixed Costs				\$ 315.85
Total Costs per Acre				\$ 24,861.33
Net Enterprise Income				\$ 15,458.67

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Sample Leaf Lettuce Budget

South Western Idaho Production

Sensitivity Analysis						
Net returns for five different yields and prices						
		Yields				
Prices		19,000	22,000	25,000	28,000	31,000
\$	3.50	\$41,638.67	\$52,138.67	\$62,638.67	\$ 73,138.67	\$ 83,638.67
\$	3.75	\$46,388.67	\$57,638.67	\$68,888.67	\$ 80,138.67	\$ 91,388.67
\$	4.00	\$51,138.67	\$63,138.67	\$75,138.67	\$ 87,138.67	\$ 99,138.67
\$	4.25	\$55,888.67	\$68,638.67	\$81,388.67	\$ 94,138.67	\$106,888.67
\$	4.50	\$60,638.67	\$74,138.67	\$87,638.67	\$101,138.67	\$114,638.67

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Background & Assumptions

The cost and return estimate shown here is typical for growing peppers on a small scale in southwestern Idaho. Because each farm has a unique set of resources, production challenges, and level of productivity, costs will vary from farm to farm.¹ Users of this budget are encouraged to think about their individual operation, especially when calculating costs to be included in overhead.

The Farm

This budget is based on a farm with a total of five acres in production, with one acre planted in peppers. The farm uses a drip irrigation system that must be replaced every three years. Because the farm is small and diverse, very little machine labor is used.

Production Practices

Although the farm is not certified organic, it follows general organic production practices. In the spring the land is disked and trenched. Then compost and fertilizer are spread and the drip irrigation tape and plastic mulch is installed. The pepper transplants are planted in double rows 14" apart on the mulch.

Weeds are controlled largely by the plastic mulch, and supplemented with hand and mechanical controls.

The yield is estimated at 2 pounds per plant. Plants are hand harvested three times over the course of the season. It is also assumed that 25% of the peppers are sold by the 20 pound box to distributors and grocery stores, while 75% are sold for processing. Minimal costs are included for pesticides as their use is infrequent and unpredictable.

Machinery, Land, and Labor

Custom hiring is used for land preparation and chemical applications. Labor to operate machinery is valued at \$16.25 per hour and general farm labor is valued at \$9.55 per hour. Labor rates include a base wage plus a percentage for Social Security, Medicare, unemployment insurance, and other labor overhead expenses. The land charge of \$150.00 is based on the 2011 NASS cash rent for irrigated cropland in southwestern Idaho. The interest rate for annual operating expenses is assumed to be 6.75%.

¹ Input prices, labor values, and interest rates were taken from the University of Idaho's Idaho Crop Input Price Summary for 2011 where applicable.

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Sample Fresh-Market Peppers Budget South Western Idaho Production

Items	Quantity per Acre	Unit	Price per Unit	Total Value/Cost per Acre
Gross Returns				
Peppers - No. 1	7,280	lb	\$ 1.50	\$ 10,920.00
Peppers - Processing Peppers	21,840	lb	\$ 0.50	\$ 10,920.00
Total Gross Returns for Peppers				\$ 21,840.00
Variable Costs				
Seedlings	14,560	plants	\$ 0.17	\$ 2,475.20
Soil Amendments				
Compost	2	cubic yard	\$ 42.99	\$ 85.98
Approved Organic Chemicals	1	acre	\$ 150.00	\$ 150.00
Land Preparation				
Black/Embossed/Red Plastic Mulch (4' wide)	7,280	feet	\$ 0.04	\$ 291.20
Drip Irrigation Tape (Tape & Labor)	1	acre	\$ 467.00	\$ 467.00
Labor				
Custom Applications				
Primary Tillage	1	time	\$ 29.63	\$ 29.63
Row Markout & Spread Compost	1	time	\$ 40.00	\$ 40.00
Cultivate	3	times	\$ 17.00	\$ 51.00
Spray Chemicals	1	time	\$ 8.83	\$ 8.83
Pest Scouting	8	hours	\$ 11.55	\$ 92.40
Plastic Mulch/Tape Installation & Removal	60	hours	\$ 9.55	\$ 573.00
Planting Transplants	80	hours	\$ 9.55	\$ 764.00
Hand Hoeing	60	hours	\$ 9.55	\$ 573.00
Hand Harvest	105	hours	\$ 9.55	\$ 1,002.75
Packing/Grading	31	hours	\$ 9.55	\$ 296.05
Pest Control	1	hours	\$ 16.25	\$ 16.25
Misc.				
Cartons (20 lbs)	1,500	cartons	\$ 1.35	\$ 2,025.00
Picking Baskets	110	baskets	\$ 1.30	\$ 143.00
Fuel	16.5	gallons	\$ 3.63	\$ 59.90
Interest on Operating Capital			6.75%	\$ 308.62
Total Variable Costs				\$ 6,977.60
Fixed Costs				
Irrigation	1	acre	\$ 125.85	\$ 125.85
Land	1	acre	\$ 150.00	\$ 150.00
Total Fixed Costs				\$ 275.85
Total Costs per Acre				\$ 7,253.45
Net Enterprise Income				\$ 14,586.55

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Sample Fresh-Market Peppers Budget South Western Idaho Production

Sensitivity Analysis						
Net returns for five different yields and prices						
Prices		Yields				
		23,000	26,000	29,000	32,000	35,000
\$	1.00	\$15,746.55	\$18,746.55	\$21,746.55	\$24,746.55	\$27,746.55
\$	1.25	\$21,496.55	\$25,246.55	\$28,996.55	\$32,746.55	\$36,496.55
\$	1.50	\$27,246.55	\$31,746.55	\$36,246.55	\$40,746.55	\$45,246.55
\$	1.75	\$32,996.55	\$38,246.55	\$43,496.55	\$48,746.55	\$53,996.55
\$	2.00	\$38,746.55	\$44,746.55	\$50,746.55	\$56,746.55	\$62,746.55

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Background & Assumptions

The cost and return estimate shown here is typical for growing strawberries on a small scale in southwestern Idaho. Because each farm has a unique set of resources, production challenges, and level of productivity, costs will vary from farm to farm.¹ Users of this budget are encouraged to think about their individual operation, especially when calculating costs to be included in overhead.

The Farm

This budget is based on a farm with a total of five acres in production, with one acre planted in strawberries. The farm uses a drip irrigation system that must be replaced every three years. Because the farm is small and diverse, very little machine labor is used.

Production Practices

In the spring the land is disked and trenched. Then compost is spread and the drip irrigation tape and plastic mulch is installed. The strawberries are planted in matted rows spaced four feet apart. Transplants are placed 9" apart, for a total of 8,100 plants per acre. Runners are cut off the plants throughout the summer and some fruit harvested during the first year. Weeds are controlled with the plastic mulch and hand hoeing as needed. The life of the planting is assumed to be four years, one year in establishment and three years in full production. The yield listed is the

estimate for day neutral, ever-bearing Tribute strawberries, approximately 0.5-1.5 pounds per foot row, as listed in the UI publication "Growing Strawberries." It is assumed that yield will be highest in the first production year and decrease as the plants age. It is also assumed that berries are sold by the quart off farm, with some U-pick done on the farm. No costs are included for pesticides as their use is infrequent and unpredictable.

Machinery, Land, and Labor

Work such as land preparation is custom hired. Labor to operate machinery is valued at \$16.25 per hour and general farm labor (not including harvest) is valued at \$9.55 per hour. Harvest labor is paid by the quart harvested. Labor rates include a base wage plus a percentage for Social Security, Medicare, unemployment insurance, and other labor overhead expenses. The land charge of \$150.00 is based on the 2011 NASS cash rent for irrigated cropland in southwestern Idaho. The interest rate for operating expenses is assumed to be 6.75%.

¹ Input prices, labor values, and interest rates were taken from the University of Idaho's Idaho Crop Input Price Summary for 2011 where applicable.

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Sample Fresh-Market Strawberry Budget - Establishment South Western Idaho Production

Items	Quantity per Acre	Unit	Price per Unit	Total Value/Cost per Acre
Gross Returns				
Strawberries	3,100	lbs	\$ 1.50	\$ 4,650.00
Variable Costs				
Supplies				
Plants	8,100	plants	\$ 0.40	\$ 3,240.00
Fertilizer	300	lbs	\$ 0.56	\$ 168.00
Black/Embossed/Red Plastic Mulch (4' wide)	10,800	feet	\$ 0.04	\$ 432.00
Drip Irrigation Tape	1	acre	\$ 150.00	\$ 150.00
Labor				
Custom Applications				
Primary Tillage	1	time	\$ 29.63	\$ 29.63
Row Markout and Fertilize	1	time	\$ 40.00	\$ 40.00
Plastic Mulch Installation	40	hours	\$ 9.55	\$ 382.00
Irrigation Installation	40	hours	\$ 9.55	\$ 382.00
Transplanting	81	hours	\$ 9.55	\$ 773.55
Hand Hoeing	250	hours	\$ 9.55	\$ 2,387.50
Cutting Runners	50	hours	\$ 9.55	\$ 477.50
Harvest	2,000	qts	\$ 0.67	\$ 1,340.00
Quart Containers	2,000	containers	\$ 0.13	\$ 260.00
Harvest Trays	75	trays	\$ 11.00	\$ 825.00
Interest on Operating Capital			6.75%	\$367.44
Total Variable Costs				\$ 11,254.62
Fixed Costs				
Irrigation	1	acre	\$ 125.85	\$ 125.85
Land	1	acre	\$ 150.00	\$ 150.00
Total Fixed Costs				\$ 275.85
Total Establishment Year Costs per Acre				\$ 11,530.47
Net Enterprise Income				\$ (6,880.47)

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Sample Fresh-Market Strawberry Budget - Production Year 1 South Western Idaho Production

Items	Quantity per Acre	Unit	Price per Unit	Total Value/Cost per Acre
Gross Returns				
Strawberries	9,300	lbs	\$ 1.50	\$ 13,950.00
Variable Costs				
Supplies				
Fertilizer	300	lbs	\$ 0.56	\$ 168.00
Labor				
Custom Applications				
Cultivate	1	acre	\$ 17.00	\$ 17.00
Fertilizer - Ground Application	1	acre	\$ 13.50	\$ 13.50
Hand Hoeing	250	hours	\$ 9.55	\$ 2,387.50
Renovation	4	hours	\$ 16.25	\$ 65.00
Harvest	6,000	qts	\$ 0.67	\$ 4,020.00
Quart Containers	6,000	containers	\$ 0.13	\$ 780.00
Trays for u-pick	100	trays	\$ 0.46	\$ 46.00
Interest on Operating Capital			6.75%	\$253.02
Total Variable Costs				\$ 7,750.02
Fixed Costs				
Irrigation	1	acre	\$ 125.85	\$ 125.85
Land	1	acre	\$ 150.00	\$ 150.00
Soil Analysis	1	kit	\$ 50.00	\$ 50.00
Establishment Costs (Amortized Over 3 Years)	1	acre	\$4,373.65	\$ 4,373.65
Total Fixed Costs				\$ 4,699.50
Total Costs per Acre				\$ 12,449.53
Net Enterprise Income				\$ 1,500.47

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Sample Fresh-Market Strawberry Budget - Production Year 2 South Western Idaho Production

Items	Quantity per Acre	Unit	Price per Unit	Total Value/Cost per Acre
Gross Returns				
Strawberries	6,200	lbs	\$ 1.50	\$ 9,300.00
Variable Costs				
Supplies				
Fertilizer	300	lbs	\$ 0.56	\$ 168.00
Labor				
Custom Applications				
Cultivate	1	acre	\$ 17.00	\$ 17.00
Fertilizer - Ground Application	1	acre	\$ 13.50	\$ 13.50
Hand Hoeing	250	hours	\$ 9.55	\$ 2,387.50
Renovation	4	hours	\$ 16.25	\$ 65.00
Harvest	4,000	qts	\$ 0.67	\$ 2,680.00
Quart Containers	4,000	containers	\$ 0.13	\$ 520.00
Trays for u-pick	75	trays	\$ 0.46	\$ 34.50
Interest on Operating Capital			6.75%	\$198.64
Total Variable Costs				\$ 6,084.14
Fixed Costs				
Irrigation	1	acre	\$ 125.85	\$ 125.85
Land	1	acre	\$ 150.00	\$ 150.00
Soil Analysis	1	kit	\$ 50.00	\$ 50.00
Establishment Costs (Amortized Over 3 Years)	1	acre	\$4,373.65	\$ 4,373.65
Total Fixed Costs				\$ 4,699.50
Total Costs per Acre				\$ 10,783.64
Net Enterprise Income				\$ (1,483.64)

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Sample Fresh-Market Strawberry Budget - Production Year 3 South Western Idaho Production

Items	Quantity per Acre	Unit	Price per Unit	Total Value/Cost per Acre
Gross Returns				
Strawberries	3,100	lbs	\$ 1.50	\$ 4,650.00
Variable Costs				
Supplies				
Fertilizer	300	lbs	\$ 0.56	\$ 168.00
Labor				
Custom Applications				
Cultivate	1	acre	\$ 17.00	\$ 17.00
Fertilizer - Ground Application	1	acre	\$ 13.50	\$ 13.50
Hand Hoeing	250	hours	\$ 9.55	\$ 2,387.50
Renovation	4	hours	\$ 16.25	\$ 65.00
Harvest	2,000	qts	\$ 0.67	\$ 1,340.00
Quart Containers	2,000	containers	\$ 0.13	\$ 260.00
Trays for u-pick	50	trays	\$ 0.46	\$ 23.00
Interest on Operating Capital			6.75%	\$144.25
Total Variable Costs				\$ 4,418.25
Fixed Costs				
Irrigation	1	acre	\$ 125.85	\$ 125.85
Land	1	acre	\$ 150.00	\$ 150.00
Soil Analysis	1	kit	\$ 50.00	\$ 50.00
Establishment Costs (Amortized Over 3 Years)	1	acre	\$4,373.65	\$ 4,373.65
Total Fixed Costs				\$ 4,699.50
Total Costs per Acre				\$ 9,117.75
Net Enterprise Income				\$ (4,467.75)

University of Idaho

Office of Community Partnerships

Sample Fresh-Market Strawberry Budget

South Western Idaho Production

Sensitivity Analysis					
Net returns for five different yields and prices, based on average costs per acre					
Prices	Yields (lbs)				
	3,000	5,000	7,000	9,000	11,000
\$ 0.50	\$(9,283.64)	\$(8,283.64)	\$(7,283.64)	\$(6,283.64)	\$(5,283.64)
\$ 1.00	\$(7,783.64)	\$(5,783.64)	\$(3,783.64)	\$(1,783.64)	\$ 216.36
\$ 1.50	\$(6,283.64)	\$(3,283.64)	\$(283.64)	\$ 2,716.36	\$ 5,716.36
\$ 2.00	\$(4,783.64)	\$(783.64)	\$ 3,216.36	\$ 7,216.36	\$11,216.36
\$ 2.50	\$(3,283.64)	\$ 1,716.36	\$ 6,716.36	\$11,716.36	\$16,716.36

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Background & Assumptions

The cost and return estimate shown here is typical for growing tomatoes on a small scale in southwestern Idaho. Because each farm has a unique set of resources, production challenges, and level of productivity, costs will vary from farm to farm.¹ Users of this budget are encouraged to think about their individual operation, especially when calculating costs to be included in overhead.

The Farm

This budget is based on a farm with a total of five acres in production, with one acre planted in tomatoes. The farm uses a drip irrigation system that must be replaced every three years. Because the farm is small and diverse, very little machine labor is used.

Production Practices

Although the farm is not certified organic, it follows general organic production practices. In the spring the land is disked and trenched. Then compost is spread and the drip irrigation tape and plastic mulch is installed. The tomatoes are planted 24" apart in rows on the plastic mulch. Weeds are controlled largely by the plastic mulch, and supplemented with hand and mechanical controls.

The yield listed is estimated to be 5 pounds per plant. It is also assumed that 80% of the tomatoes are sold for processing and 20% are sold for fresh market to distributors and grocery stores.

Minimal costs are included for pesticides as their use is infrequent and unpredictable. Approximately half of the tomatoes are covered to mitigate damage from leaf hoppers.

Machinery, Land, and Labor

Custom hiring is used for land preparation and chemical applications. Labor to operate machinery is valued at \$16.25 per hour and general farm labor is valued \$9.55 per hour. Labor rates include a base wage plus a percentage for Social Security, Medicare, unemployment insurance, and other labor overhead expenses. The land charge of \$150.00 is based on the 2011 NASS cash rent for irrigated cropland in southwestern Idaho. The interest rate for annual operating expenses is assumed to be 6.75%.

¹ Input prices, labor values, and interest rates were taken from the University of Idaho's Idaho Crop Input Price Summary for 2011 where applicable.

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Sample Tomato Budget

South Western Idaho Production

Items	Quantity per Acre	Unit	Price per Unit	Total Value/Cost per Acre
Gross Returns				
Tomatoes - No.1	7,280	lb	\$ 1.50	\$ 10,920.00
Tomatoes - Processing Tomatoes	29,120	lb	\$ 0.50	\$ 14,560.00
Total Gross Returns for Tomatoes				\$ 25,480.00
Variable Costs				
Soil Amendments				
Compost	1	cubic yard	\$ 42.99	\$ 42.99
Pest Management				
Leaf Hopper Control - Some Row Covers	1	acre	\$ 1,200.00	\$ 1,200.00
Land Preparation				
Black/Embossed/Red plastic mulch (4' width)	7,280	feet	\$ 0.04	\$ 291.20
Drip irrigation tape (tape and labor)	1	acre	\$ 467.00	\$ 467.00
Supplies				
Tomato transplants	7,280	plants	\$ 0.28	\$ 2,038.40
Stakes	3,640	stakes	\$ 0.10 ¹	\$ 364.00
Labor				
Custom Applications				
Primary Tillage	1	time	\$ 29.63	\$ 29.63
Row Markout & Spread Compost	1	time	\$ 40.00	\$ 40.00
Cultivate	3	times	\$ 17.00	\$ 51.00
Pest scouting	8	hours	\$ 11.55	\$ 92.40
Plastic mulch installation/removal	60	hours	\$ 9.55	\$ 573.00
Planting transplants	26.5	hours	\$ 11.55	\$ 306.08
Hand Hoeing	20	hours	\$ 9.55	\$ 191.00
Staking and tying	86	hours	\$ 9.55	\$ 821.30
Hand harvest	738	hours	\$ 9.55	\$ 7,047.90
Packing/grading	72.25	hours	\$ 9.55	\$ 689.99
Pest control	40	hours	\$ 16.25	\$ 650.00
Misc.				
Twine	43,680	feet	\$ 0.005	\$ 214.03
Picking Baskets	40	baskets	\$ 1.30	\$ 52.00
Cartons (25 lbs.)	1450	cartons	\$ 1.35	\$ 1,957.50
Interest on Operating Capital			6.75%	\$ 577.78
Total Variable Costs				\$ 17,697.19
Fixed Costs				
Irrigation	1	acre	\$ 125.85	\$ 125.85
Land Charge	1	acre	\$ 150.00	\$ 150.00
Total Fixed Costs				\$ 275.85
Total Costs per Acre				\$ 17,973.04
Net Enterprise Income				\$ 7,506.96

¹It is assumed that wooden stakes cost \$.50 each and have a useful life of 5 years.

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Sample Tomato Budget

South Western Idaho Production

Sensitivity Analysis					
Net returns for five different yields and prices					
Prices	Yields				
	30,400	32,400	34,400	36,400	38,400
\$ 0.50	\$ (2,773.04)	\$ (1,773.04)	\$ (773.04)	\$ 226.96	\$ 1,226.96
\$ 0.75	\$ 4,826.96	\$ 6,326.96	\$ 7,826.96	\$ 9,326.96	\$ 10,826.96
\$ 1.00	\$ 12,426.96	\$ 14,426.96	\$ 16,426.96	\$ 18,426.96	\$ 20,426.96
\$ 1.25	\$ 20,026.96	\$ 22,526.96	\$ 25,026.96	\$ 27,526.96	\$ 30,026.96
\$ 1.50	\$ 27,626.96	\$ 30,626.96	\$ 33,626.96	\$ 36,626.96	\$ 39,626.96

The Office of Community Partnerships supports Idaho communities through research and student projects focused on local priorities. We provide a front door for Idaho communities to access university resources, including UI Extension, the Service-Learning Center, and faculty throughout the university. Our projects aim to advance innovation and sustainability, build leadership, and create vibrant communities.

The Office of Community Partnerships was established in 2009 by University of Idaho President M. Duane Nellis.